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Diabetes a Surgical Problem
Sulfonamides in Surgical Conditions
The Diagnosis of Testis Tumors
Research

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EDITORIALS

Graphology and Feature Study

WE daresay that to the neurologist the handwriting of a patient with parkinsonism or multiple sclerosis is diagnostic. Since in the one case there is a non-intention tremor and in the other case an intention tremor, producing different effects upon chirography, it is perhaps even possible for the neurologist to make a differential diagnosis. Here is a respectable foundation upon which to build a science of graphology. Some large business organizations are said to employ it as a means of ascertaining traits of character. A medical friend of the writer, an internist, recently remarked that if he could get a handwritten letter from a patient before consultation he could tell fairly well what kind of a person he would have to deal with.

Study of the features is another field to consider seriously. Graphology and study of the features are not any farther away from scientific medicine than have been, in past times, certain subjects now incorporated in our body of knowledge and practice. The charlatan himself has only too often in the course of medical history been the forerunner of the doctor.

These things will never be anything but auxiliary factors in diagnosis (particularly preclinical medicine) and therapy. They will be integrated with or added unto the constitutional types which have figured in the work of the morphologists Draper, Krogman, Wertheimer, Hesketh, Weidenreich, di Giovanni, Brugsch, Sugaud, Kretschmer, Stockard, Brezina, Wastl, Lessa, von Rohden, Sheldon, Tucker, Wagenseil, Claussen, Johnson, McCloy, Marshall, Mullen, Waldrop, Kraepelin, Connolly, Kerck, Harrasser, Plattner, Freeman, Petersen, Lucas, Pryor, Reese, Goldthwait, Pearl, Ciocco, Simpson, Arnold, Saller, Bean, Günther, Dublin, Marks, Jaensch, Makarow, Mills, Kugelmass, Weisman, Hartung, and Kovacs.

Such material should be *correlated* with the medical findings. Like the electrocardiogram, they are of no value without a history.

A Desperate Remedy for a Desperate Disease

THE campaign against material waste arouses thoughts about human waste. As the country swings into full defense production in 1942 and unessential things are eliminated in large measure, we may expect to see a considerable curtailment of those automobiles now used without much reason or excuse.

It has taken a war to solve the traffic problem and the problem of wasted lives in civil life. The scandalous killing and maiming of recent years will see some abatement.

War is a drastic remedy for such evils, but desperate diseases require desperate remedies.

War is not without a bright side. Perhaps today more lives will be saved at home than will be lost on fields of battle.

The Mold That Is Being Cast

IF the past generation has witnessed a great increase in the neuroses, what kind of a world is it in which the next generation is being nurtured? For these children are literally being bred by the war,

with, in Europe, some bomb-shocking thrown in for full measure.

Dr. James Sonnett Greene sees a greater task for medicine in combating neuroticism than it has had to wage against the slum and all its related evils.

Dr. Greene sees a very important angle of neuroticism through speech and voice disorders, which so often betray it. "Neuroses will increase," he writes, "until we are able to bequeath our children a world in which there is less artificiality and less emphasis on individual aggressiveness; a world in which there is more security for everyone; a world in which conditions will not periodically give rise to a Hitler or a Mussolini, or in which the fate of a civilization will not hang upon the frenzied production of fighter planes; a world of peace and real tolerance in which we no longer think in terms of 'superior' and 'inferior' races or social strata, but rather in terms of the progress and happiness of all mankind."

Glaucoma—A Growing Menace

OUR growing awareness of glaucoma as a principal factor in the production of a vast amount of partial or total loss of vision seems to be culminating, happily, in a kind of crusade for earlier diagnosis and better treatment undertaken by the various ophthalmic organizations and sponsored by the National Society for the Prevention of Blindness. Weaknesses in the present system of diagnosis and treatment in eye clinics, for example, are to be remedied. There will even be glaucoma clinics where before the glaucoma work was integrated with too many other things, all of which, of course, means more social workers, more ophthalmologists, and more money.

It is the rise in the population age group of those over forty plus the increasing strain and worry which characterize life today which accounts for the growth of this menace.

The general practitioner holds a great responsibility in this matter. He can not easily be fooled by an acute glaucoma, with its hardening of the eyeball, pain, loss of vision, nausea or vomiting, dilated pupil and cloudy cornea; but it is the far more frequent simple or chronic glaucoma that may disgrace him and ruin an eye; so he must be ready and alert always to sense whether the eyes are normally soft or hard, whether there is blurred vision after a visit to the movies, card playing or reading, whether rainbow-colored halos appear around distant lights, whether there is inequality of the pupils or poor reaction to light, and whether difficulty in reading persists after getting new glasses. Of course, if the practitioner can see, with an electric ophthalmoscope, whether the optic disks are pale and excavated, so much the better.

Not much trouble to take, in view of the gruesome results that may be prevented by prompt treatment. We have outlined the least that one can do in view of one's plain duty in the premises.

One doesn't have to be an ophthalmologist, but one should be glaucoma-conscious.

The Campaign Against Glaucoma

STEADY progress in the campaign of public education concerning glaucoma was reported at the recent biennial conference of the National Society for the Prevention of Blindness (Dec. 4) by Dr. Mark J. Schoenberg of New York City, chairman of the Society's Committee on Glaucoma. A good beginning has been made in the drive to secure the support of general practitioners, medical social workers and the lay public, as well as ophthalmologists, in order to bring about early recognition of this eye condition and the necessary medical care.

Approximately 20,000 men and women in the United States are totally and incurably blind, and 100,000 others have lost part of their sight, as the result of glaucoma. It is responsible for 10 per cent of all blindness in this country.

STUDIES IN DIABETES—No. 12

The Cure of Diabetes A Surgical Problem

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IT is only by the cure of existing cases of diabetes that we can prevent occurences of future cases through heredity. The modern treatment of diabetes by insulin does not cure. On the other hand, it prolongs the life of existing cases and makes their lives so comfortable that marriages which formerly were impossible become commonplace, and offspring carrying inherited diabetic tendencies increase in numbers, so that the incidence of new cases and the death rate of total cases have increased correspondingly. As Wilder observes of the Mayo Clinic: "Diabetes was encountered infrequently before 1920. It has now become one of the most common diseases." Heredity determines the functional ability of all tissue cells in an individual. Since all development comes from the cell division of a single cell, all tissue cells receive their share of hereditary genes, and the general tone of any particular system is dependent upon this general inheritance. Such a general reduction of functional ability may bring about many so-called disease states, among which *may be diabetes,* but it is very doubtful if there is a special direct diabetic inheritance in spite of the Mendelian theories advanced by some authors, since diabetes can only be caused by the reduction of functional ability in a small number of tissue cells in the islands of Langerhans, and we know that this may be brought about in many indirect ways, as by hypo- or hyperfunctioning of such glands as the thyroid, pituitary, or adrenals. In other words, diabetes results as a secondary condition, due to the previous inheritance of a generally debilitated tissue cell groundwork, which gives out in some of its weak parts, and creates those endocrine inequalities of carbohydrate metabolism which produce a constant hyperglycemia. This constantly overstimulates insulin production, causing strain and exhaustion of the insulin cells, resulting in a final insufficiency of insulin, then glycosuria and frank diabetes. It has been established by the clinical treatment of hundreds of thousands of cases by hundreds of special workers with insulin, that the 50 per cent of diabetics who must always use insulin to keep their metabolism up to normal levels cannot be cured by our present modern methods, which simply supply the insufficiency of insulin by substitution, but do not cause the diseased pancreas of the patient to produce more native insulin to relieve the deficiency. Our treatment of diabetes by insulin has been so extensive during twenty years, in its earliest as well as later stages, that the hopes of many that still earlier treatment with insulin might inhibit the progress of a developing diabetes so as to abort it, and in short cure it, is vain. This hope is all the more unjustifiable because it is based on facts derived from the production of permanent pituitary diabetes by Young and experiments by Best using insulin injections concurrently with pituitary extracts; no permanent diabetes resulting in the latter experiments. Facts derived from these experiments have no value since no such hyperpituitarism is ever produced in human beings as Young brings about by his enormous and long continued doses of extract, and it is a well-known fact that the normal human pancreas, with its great reserve power of insulin production, can easily compensate for any common increase of pituitary action. At the best these hopes can only apply to the very earliest cases where the giving of insulin is supposed to prevent the deleterious effects of excessive pituitary functioning. Such a program would not help much

to prevent the alarming increase of diabetic cases which has been going on since the discovery of insulin. What we must have, then, is an absolute cure for existing severe cases of diabetes, if we wish to prevent the race as a whole from developing increasing percentages of the disease through hereditary units and siblings. Such a cure has not been demonstrated to date, and must be developed from the knowledge which we already possess. The question is, are we using all of that knowledge? Haven't we overlooked some significant detail which, if developed by further study and experimental tests, might furnish the cure which we seek? I believe we have overlooked such a detail, which I will name.

WHILE taking lectures at the University of Berlin in 1896, I heard the students discussing the wonderful experiments of Minkowski in depancreatizing dogs, by which he discovered the organ responsible for the disease, and, through his subjects, was able to study the symptoms and signs of the disease, even the coma in which all of his dogs died in two weeks or less. But the experiment which struck me especially was the one which he did one day when a new inspiration must have come upon him. For, as he was depancreatizing a fresh dog and saw several of his dying dogs prowling about the laboratory, the thought occurred to him, if taking the pancreas out of a dog makes him have diabetes, why should not putting a new pancreas into a dog who has none cure the diabetes? He did this and *cured the dog;* but the world of medicine has not recognized the fact nor made use of it. Furthermore, he did it by simply cutting a slit through the skin on the back of one of the sick dogs, inserting the fresh pancreas beneath the skin, and sewing up the cut. The skin healed, the pancreas organized and began to pour its insulin into the blood, and a cure resulted; thus showing that a pancreatic graft could be inserted in any part of the body at a distance from its abdominal site, and that it would function perfectly. With such proof of a complete cure, what excuse can surgery have for not following up this remarkable discovery; that it has not done so is probably due to the wonderful success of the insulin treatment in lengthening the life and restoring to normal activity the sad derelicts of former diabetic days. Moreover, the development of this new surgical cure for diabetes would still leave intact all the benefits of the medical treatment, and thus the individual retain all of his benefits, and the race gradually eradicate diabetes from the list of diseases infesting it.

To sum up, we must conclude that insulin treatment has benefited the individual immensely but has extended the disease in the race through heredity, as is clearly shown by the large increase in diabetes since the discovery of insulin.

AND now for a discussion of practical methods for the accomplishment of these objects. Needless to say, the experiments of Frederick M. Allen furnish us with absolutely scientific data upon practically every stage of the surgical operation itself, as well as upon the medical care by diet necessary for success. For instance, I will mention only one experiment. He partially depancreatized a dog leaving one-tenth of the pancreas *in situ*. A diet sufficiently restricted to keep the dog sugar free was given, and at the end of a year the dog was killed and the pancreas examined. To his surprise, the pancreas was found to have increased in size from the original one-tenth to practically normal size; showing that a section of pancreas will develop by hyperplasia until it can supply whatever insulin the body demands. This belief was fundamental also with Halsted of Johns Hopkins. So, I say again, why should surgery neglect its duty? To initiate this procedure, it will be necessary to associate some surgeon who handles many cases of pancreatic surgery with the chief of the diabetic clinic, who always has on hand many severe cases of diabetes who will embrace the chance to better their prospects of cure by a surgical operation. I have had dozens of such patients in my own practice. This would be possible at once in many of our great clinics in the larger cities such as the Mayo and Lahey Clinics; or by specialists on the pancreas, such as Whipple, taking an interest in the possibili-

—Continued on page 90

The Sulfonamide
COMPOUNDS IN SURGICAL CONDITIONS

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SINCE the discovery, a few years ago, that drugs of the sulfanilamide group were effective in combating streptococcus infections, chemotherapy has assumed an important role in the treatment of surgical infections. In this paper an attempt will be made to summarize some of the recent literature, especially the practical applications of this mode of therapy.

Lockwood (1) has well summarized the mode of action of the sulfonamide compounds as follows: "Sulfonamide compounds produce their effects in infectious lesions by exercising a bacteriostatic effect on the organisms. This bacteriostatic effect is probably a result of a specific interference with the enzymatic utilization by the bacteria of some nutritive chemical factor, such as p-aminobenzoic acid. These substances, the utilization of which is blocked by sulfonamide, will act as inhibitors of sulfonamide effects when they are present in more than minimal concentrations. The curative effects of sulfonamides are maximal when the concentration of the drug is high, when the local cellular defense is active, and when the concentration of sulfonamide inhibitors in the infected area is low. Localized areas of tissue necrosis and abscesses contain large quantities of sulfonamide inhibitor. The organisms within such lesions are protected against the effects of sulfonamides. Surgical treatment of sulfonamide-resistant lesions is of great importance."

The more commonly used drugs of the group are sulfanilamide, sulfapyridine, sulfathiazole, sulfadiazine and sulfaguanidine.

Sulfanilamide is especially effective in infections due to the hemolytic streptococcus, the gonococcus and the meningococcus. Because of disappointing results in infections due to the pneumococcus and staphylococcus, attempts were made to discover related chemicals which might also be useful in these infections. Sulfapyridine was found to produce remarkable recoveries in pneumonia and other pneumococcic infections. However, it had little effect on staphylococcic infections and was found to cause extreme gastric irritation. So the search was continued and sulfathiazole was introduced. This drug is rapidly absorbed from the stomach, and produces much less nausea and vomiting. It is rapidly excreted by the kidneys, on which it may cause toxic effects. Red blood cells, casts and crystals of sulfathiazole are frequently found. If the urinary output decreases below 1000 c.c. daily it should be discontinued or the dose reduced. These effects are not so severe or frequent as with sulfapyridine.

Sulfadiazine, which is the pyrimidine derivative of sulfanilamide, is one of the last of these drugs to receive attention. Studies indicate that it is as effective as sulfanilamide against the hemolytic streptococcus and equal to sulfapyridine and sulfathiazole against staphylococcic and pneumococcic infections. It has the further advantage of being more rapidly and uniformly absorbed, of giving higher blood concentrations and of being less toxic. At present its higher cost would seem to limit somewhat its more general use.

Sulfaguanidine has more recently been added to the group and as it is less rapidly absorbed from the gastro-intestinal tract its principal use would seem to be in infections of that tract. Favorable reports have been made of its effectiveness as a prophy-

lactic against peritonitis in operations on the intestines, especially resections of the colon.

While the usual method of administration has been oral, these drugs have been used locally, subcutaneously and intravenously. Their effectiveness in general conditions seems to depend on an adequate concentration in the blood, which seems to be about 4 to 5 mg. in 100 cubic centimeters. In a severe infection this should be determined daily. It is about the average obtained in an adult with an initial dose of 2 gm. followed by 1 gm. every four hours.

Much has been written about the toxic symptoms and these will not be elaborated upon here. Suffice it to say that frequent blood counts and urinalyses should be made, and the patient should be kept under close observation.

While these drugs have been used in practically all types of infection, only a few of the more common conditions in which they have proved their effectiveness will be mentioned.

I. WOUNDS

The local implantation of powdered sulfanilamide or sulfathiazole, or even better a mixture of equal parts of each, as advised by Key (2), in a fresh wound seems to favor healing and prevent infection in the great majority of cases. This allows primary closure and shortens the period of disability as well as insuring comfort and the safety of the patient. This is especially important in extensive lacerated wounds or those contaminated with dirt, grease or other foreign matter. It should not take the place of a thorough mechanical cleansing and débridement of the wound where indicated, but the use of strong antiseptics in the wound should be avoided. When a wound is treated after an interval of hours or days when infection has occurred, devitalized tissues should be removed and the powder inserted into all pockets and the wound packed open with plain or vaselin gauze. If pus is present the wound should be irrigated with hydrogen peroxide as this seems to make the powder more effective. In severely infected extensive wounds Carrel-Dakin tubes may be inserted into the depths and frequent instillation of 0.8 per cent solution of sulfanilamide or sulfathiazole may be used according as the streptococcus or staphylococcus may be found to be the predominant causative organism. Key (2) goes to the extreme of advising that the powder be used in all clean operative incisions as a prophylactic against infection.

II. COMPOUND FRACTURES

In compound fractures most promising results have been reported from adding the use of sulfonamide powder in the wounds to the accepted method of thorough cleansing, débridement, reduction of the fractured bones and the appropriate immobilization. It seems to be an effective preventive of gas bacillus infection. Internal fixation by vitallium plates, where necessary, has been used with good bony union in most cases. This method would seem preferable to that of packing such wounds with vaselin gauze, which gives good results but after a few days the odor becomes offensive to the patient and all others in the vicinity.

III. OSTEOMYELITIS

In acute hematogenous osteomyelitis Bick (3) states that the addition of sulfanilamide or sulfapyridine to the treatment has not significantly altered the general course of bone pathology, rate of recurrences or metastases, and concludes that sulfone chemotherapy is not a substitute for surgical judgment, operative technique or meticulous after-care. However, Key (2) says that acute pyogenic infections should be drained adequately and sulfathiazole should be used locally and given by mouth in full doses. He also advises that in chronic bone infections and draining sinuses, sequestra and necrotic bone or soft tissues be removed and sulfathiazole be given in full doses by mouth and implanted in the wounds, which may then be loosely sutured.

IV. PERFORATIVE APPENDICITIS WITH ABSCESS OR PERITONITIS

Numerous articles have appeared in recent literature about the treatment of acute

appendicitis, complicated by localized abscess or peritonitis, by these drugs. Two methods of administration have been employed, by hypodermoclysis and by local application in the abdomen. Ravdin, Lockwood and Rhoads (4) report a series of 286 cases with one death due to a leaking appendiceal stump, a mortality of .3 per cent. This is compared with a consecutive series of 552 patients treated previously in the same manner except for the sulfanilamide with a mortality of 1.4 per cent. The method of administration in nearly every instance was by hypodermoclysis. Eight grams of sulfanilamide was dissolved in one liter of normal saline solution, and this amount was given the first day in four to six instalments. The dosage was gradually reduced to three grams over a period of four to six days, or until peristalsis was reestablished, flatus was passed by anus, abdominal relaxation had taken place, and temperature and pulse were returning to normal.

The other method of using these drugs in this condition is the intra-abdominal application of sulfanilamide crystals. Thompson, Brabson and Walker (5) report a series of cases so treated in the Roosevelt Hospital, New York. In 1940 they treated 204 cases of acute appendicitis, 29 per cent of them complicated by localized abscess or peritonitis, with no deaths. This is compared with a previous series of 741 cases with a total mortality of 2.7 per cent. The technique was similar except that in the 1940 series they used sulfanilamide crystals sterilized in test tubes in an oven at 120°C. for one half hour. The average adult dosage recommended in case of peritonitis is eight grams intraperitoneally and four grams placed in the abdominal wall layers. A few grams more can be used in the treatment of severe diffuse peritonitis and less in the treatment of the definitely localized variety. The appendiceal abscess seems to lose the drug more rapidly by drainage and in this type it is safe to use as high a total as twenty grams. In infants and children one quarter or one half the above amounts were used.

One of the patients with abscess had a secondary appendectomy about two months later. The lack of adhesions encountered and the normal appearance of the peritoneum were striking. This one example adds to the general impression that the drug does not irritate the peritoneum.

While I have seen no report of a series of cases treated with sulfathiazole crystals instead of sulfanilamide, because it is more effective against a greater variety of organisms, is absorbed more slowly and is less toxic, it would seem to be preferable and will undoubtedly be used more generally in the future. Both these drugs can now be obtained in sterile ampoules.

FINALLY, a few words about the use of sulfathiazole in urinary infections. Many favorable reports have been published. McFarland and Souders (6) of the Lahey Clinic state that results in diseases of the urinary tract are especially favorable. They have given it in acute and chronic infections. If the infection is fulminating large initial doses of two to four grams may be given to obtain maximal blood concentrations quickly. If the infection is less acute two to four grams daily may be given in divided doses every four hours at first, although later the interval may be increased to every six hours. The urine should be frequently examined for red blood cells and casts and for lowered total output below 1000 c.c. daily, which are indications for lessening the dose or discontinuing the drug.

A new, better tolerated sulfonamide, most effective against urinary tract infections, especially *B. coli* and the gonococcus, has been introduced by Dr. Hugh H. Young and his associates at Johns Hopkins. This is sulfacetimide and is marketed by the Schering Corporation under the name sulamyd (7). In a paper read before the Section on Urology of the American Medical Association at its last meeting Welebir and Barnes describe it as almost a specific in the treatment of *B. coli* infections, reporting 96 per cent of 200 cases cured or improved following its use.

ONE striking personal experience seems worth recording. Following a cholecystectomy and appendectomy on an obese

female patient a severe infection of the abdominal incision occurred. In spite of free drainage and daily irrigations of the wound, the discharge continued profuse and required a change of dressings three or four times daily. The patient had a temperature of 101° to 103° and was septic. Five grams of sulfathiazole crystals were poured into the wound and this procedure was repeated in two days. The following day the temperature became normal, and there was only a slight serous discharge. Healthy granulations soon appeared and healing was uneventful.

IN conclusion, the sulfonamide drugs are a valuable and often life saving aid in surgical infections, but are never a substitute for sound surgical judgment and technique. Furthermore, due to their toxicity, the patient should always be under careful supervision when they are being administered.

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26 OCEAN AVENUE

Discussion by William H. Field, M. D., F.A.C.S.

Dr. Hildreth has so completely covered the uses of the sulfonamide drugs in the usual types of surgical cases that I have nothing further to add except to present their use in a rather uncommon condition — thoracic actinomycosis. Because actinomycosis differs from ordinary infections in that it is limited in its spread by no tissue planes or barriers, its complete surgical removal from within the chest is generally impossible. Attempts usually result in persistently discharging wounds or embolic spread. May I briefly present the history of a case of this kind that we have just had under treatment at the Brooklyn Hospital and which illustrates both great tolerance to prolonged sulfonamide dosage and apparent clinical benefit therefrom.

W. L., a ten year old boy, entered the hospital in April, 1940, with a cough ever since tonsillectomy seven months previously. He had had pain in the right anterior chest and fever for three months. A pericardial friction rub was heard and x-ray films showed a rounded mass about 2½ inches in diameter against the mediastinum in the right lower chest, anteriorly. Bronchoscopy and bronchography did not clarify the diagnosis. In the operating room aspiration with a large needle revealed a solid mass rather than the abscess expected. A core of tissue luckily presented the complete picture of a cross-section of a typical actinomycotic granuloma with several ray fungus colonies at its depth. Because there are practically no successful surgical excisions of actinomycosis of the lung recorded, and because it was felt that besides the lung and chest wall the pericardium and heart were also involved, medical treatment was decided upon. As some cases of improvement due to sulfanilamide have been reported this drug was selected for trial.

The interest lies in two facts: 1) the boy appears in excellent general health with no cough and no pain now at the end of 18 months of treatment although recent films still show the original mass present, though a little smaller, but with apparently recently enlarged upper mediastinal glands. 2) In spite of having been given neoprontosil or sulfanilamide in doses of two to three grams per day for five months and then, at the suggestion of Dr. Perrin Long of Baltimore, an increased dosage of five grams of sulfanilamide per day for four months more, the patient has shown no toxic or urinary effects and very little change in blood picture. Although his temperature fluctuated between normal and 102 degrees during the smaller dosage, under the larger dosage it became normal. Blood concentration has been generally maintained between 7 and 10 mgm. per cent while in the hospital. After the first eight months sulfathiazole was substituted in 3 grams per day dosage and continued to date. His blood now shows hgb. 75 per cent; r.b.c. 4 million; w.b.c. 10,000 with 78 per cent polymorphonuclears. Urine shows sulfathiazole crystals. Sulfathiazole blood concentration is only 2.2 per cent; the preceding test was 3.4 per cent. These tests, done while the boy has been at home, indicate that his medication has probably not been as regular as it was in the hospital.

In conclusion, may I thank Dr. Hildreth for the great pleasure and instruction we have all had in listening to his interesting paper.

Read before the 130th regular meeting of the Associated Physicians of Long Island, at the Pilgrim State Hospital, Brentwood, N. Y., September 25, 1941.

CANCER

Department Edited by John M. Swan, M.D. (Pennsylvania) F.A.C.P., Executive Secretary, New York State Committee of the American Society for the Control of Cancer.

Assistant Editors: Charles William Hennington, B.S. (Rochester), M.D. (Hopkins), F.A.C.S., and Robert Lee Brown, A.B. (Michigan), M.D. (Harvard).

PITFALLS IN THE DIAGNOSIS OF TESTIS TUMORS*

JUDSON B. GILBERT, M.D., F.A.C.S.

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THE cancer-minded physician will not often fail in the correct diagnosis of intrascrotal tumors. If, however, he is misled to make a "sympathetic" diagnosis of some more common condition, the errors will be numerous and fatal. It has often been stated in discussions of the entire cancer problem that the fate of the patient is frequently in the hands of the first physician consulted. Tragic examples of delay are not too rare. An attempt is made here to describe some of the more common pitfalls.

The average yearly incidence of testis cancer is difficult to estimate. Many reasons for the misdiagnosis of obscure cases are cited later, and probably would increase the sum total. However, Hoffman ('38) reviewed the reported cases from 1932 to 1936 in the U. S. Registration Area and arrived at a total of approximately 416 cases per year over this five year period.

Pack and Gallo ('38) in a study on the culpability for delay in the treatment of cancer, traced 10 cases in detail. They found that only 3 patients delayed consultation less than 3 months, while 7 were unduly delayed—the longest 16 months. The median was 3.8 months. The reasons for procrastination on the part of the patient are probably much alike in all investigations: ignorance of the seriousness of early symptoms, fear, unwillingness to face the truth which they suspect, and often financial circumstances. They concluded that along with a campaign to educate the public, there should be further effort to train physicians in the matter of early diagnosis in order that patients may have adequate treatment and a greater chance of cure. The fact that few patients will freely discuss sex matters, or complain of their sex organs, places a great inhibition on the early discovery of such lesions.

The typical history of slow, painless growth of one testicle does not activate the mind of the average physician to the terrible consequences of delay or incorrect treatment. The fact that the patient is not completely stripped of his clothing often is a major fault. That obscure, symptomless tumors can exist and "explode" to produce widespread metastases is indicated from the following report: A robust and apparently healthy, 23-year-old student appeared at the College infirmary for advice concerning a "jockstrap" itch. The scrotal and perineal irritation had followed sweating from horse-back riding. An acute examiner quickly noted a moderately enlarged, painless right testicle, and asked about its duration. The question surprised the student, who was quite unaware of its presence. The chief complaint of itching was dismissed and a röntgen study of the chest the same day revealed widespread pulmonary and mediastinal metastases. He died within 4 months from a teratoma, in spite of orchidectomy and irradiation therapy.

A young interne, with the intention of

* This is No. VI in a series of "Studies in Malignant Testis Tumors."

specializing in urology, was stimulated to detailed scrotal examinations in a general hospital service. The number and complexity of scrotal and other urogenital lesions demonstrated by him astonished his fellow internes, as well as confounded the general practitioners and surgeons who had hospitalized their patients primarily for other conditions. Such interest could probably be stimulated in any other hospital if an interne would spend the same amount of time and care. Years ago Osler severely criticized the common neglect of careful scrotal examinations.

It would appear that precise examinations and descriptions would be made in all cases of hernia. Such is not the case, as a review of hernia records will show. The size, contour and consistency of the testis is simply stated as being "normal"—and yet few surgeons could give an idea of the "average" size of the testis at different age periods. Delineation of the epididymis from the testicle is seldom made, and irregularities and small nodules in this region are assumed to be residual scars from a previous epididymitis. A study of over 5,500 testis tumor records in detail showed without much doubt that hernias have been repaired, and orchidopexy performed, when the surgeon replaced organs containing tumors! The extremely high incidence of malignant tumors associated with other anomalies (congenital, hermaphroditic or acquired) is added reason for suspicion. Here the disparity between removing suspected genital lesions in the male, with the more common, almost routine procedure of the gynecologists, is a survival of strange surgical practice.

The more common large, bulky tumors are not described. These dramatic demonstrations have their place in teaching medical students, and as museum pieces—but are admitted failures in the search for "early cancer." The utmost diagnostic acumen is required for the diagnosis of small and obscure tumors. Such hidden tumors could be discussed in the following general groups:

A. Conditions relative to the *scrotum.* Some fifty-nine doubtful cases were diagnosed as follows: testis tumor, 32; tuberculous epididymitis, 10; hernia, testis atrophy and ectopy, 7; orchitis, 6; hematocele, spermatocele, varicocele and torsion, 1 each. The entire list of possible benign scrotal diseases has been exhausted in the presence of these small tumors. Previous removal of a tuberculous epididymis complicated the true diagnosis of a tumor of the opposite testis. Three authors proved the coincidence of small tumors with early tuberculosis, while all other such cases were associated with considerably enlarged tumors, (Robertson and Gilbert, '34).

B. *Intra-abdominal* diseases. In twenty-six cases with abdominal conditions there were 15 abdominal tumors including so-called retroperitoneal sarcoma, 3 kidney tumors, 3 spinal abscesses or tuberculosis, 4 with general gastro-intestinal disorders, such as appendicitis, cholecystitis, and carcinoma of the the bladder.

C. Diseases of the *thorax:* Nineteen patients who had symptoms referable to the chest were diagnosed as: actual or suspected pulmonary tuberculosis, 13 (11 were chorionepitheliomata); mediastinal and thoracic lymph glands, 3; one each of suspected tumor of the ribs, tumor of the lungs and empyema. One patient had the infrequent combination of pulmonary tuberculosis and metastatic seminoma.

D. *Miscellaneous* diseases: Ten miscellaneous conditions were diagnosed as: sciatica and brain tumor twice, and one each of sub-acute endocarditis, apoplexy, Hodgkin's disease, sarcoma of the hand, edema of legs and gynecomastia. Diagnosis was made only at autopsy in eleven cases, and even then only serial microscopic sections of one testis disclosed a minute tumor.

E. Diseases of the *neck:* One apparently primary tumor involved the supraclavicular glands only.

F. *"Extragenital"* chorionepitheliomata, probably of testicular origin: Criticism can be directed against the majority of thirty-eight such reports in males. In only a few cases careful study of the testes was made in both gross and microscopic serial sections, to prove the presence of a primary testis tumor. Hartog ('33, No. 6), for example, had to examine 2,480 *serial sections* to locate the primary site of chorion-

epithelioma in a small mixed tumor of the testis. This specimen had been previously displayed in a museum as a unique primary "extragenital" chorionepithelioma of the liver. Symeonidis ('35), moreover, found an "extragenital" chorionepithelioma with microscopically normal scrotal testes. Discounting the existence of such tumors he cut a section from the retroperitoneal "primary" tumor and found there a supernumerary abdominal testis, which was the site of the primary tumor.

The reason for inclusion of the so-called extragenital tumors as of primary testicular origin is based on the facts that all such tumors were diagnosed as chorionepitheliomata, that these tumors were associated with choriogenic gynecomastia, and that the patients, where autopsy was not performed, had extremely high output of gonadotropic hormones. Some of these cases were reported before the use of the Aschheim-Zondek hormone assay in 1930. This choriogenic syndrome has been discussed in an earlier study (Gilbert '40).

G. At least seventy-five cases of so-called *retroperitoneal* sarcomata in males strongly suggest a testicular origin. It is difficult to believe that a surgeon will hazard a diagnosis of some rare disease and perform laparotomy when scrotal examination or exploration is so readily accessible.

H. Seven small primary tumors of the *epididymis* were chosen from ninety reports, because of the possible confusion with primary testis tumors. The fact that tumors arising in the rete region may infiltrate the epididymis, and clinically appear as primary epididymal tumors, is the cause of considerable error. However, if the possibility of tumor is kept in mind, no serious difficulty should occur. Where doubt exists, prompt exploratory operation is indicated.

In summary, it can be stated that there is a striking paradox in the natural history of patients with small primary testis neoplasms. The recognition of small or "early" tumors does not necessarily indicate that the tumor can be regarded as primarily operable. Because of the high incidence of teratomata and chorionepitheliomata in these obscure tumors, early metastases are common, and uniformly fatal. Unicellular tumors (seminoma) have the most favorable prognosis. The importance of this early diagnosis accounted for seventy-five per cent of the total five year survivals in a group of selected small or obscure primary testis tumors.

In a general survey of extratesticular scrotal tumors Thompson ('36) found the following general averages which are of aid in arriving at an approximate pre-operative diagnosis. The *spermatic* cord tumors on an average will be malignant in 30 per cent; the testicular *tunics* in 40 per cent, and the *epididymis* in 60 per cent of cases. Malignant tumors of the cremasteric muscle (rhabdomyosarcomata) and of the vas deferens have been reported, but are extremely rare. There are no rules which, without exception, can be relied upon in the diagnosis of this group of tumors.

The statistics of misdiagnoses collected from large general hospitals in metropolitan centers and large clinics demonstrate the difficulty involved. Here attending urologists have the opportunity to examine, and follow the course of, hundreds of scrotal lesions each year. In general, such opportunity leads to humility, and probably fewer scrotal tappings are made for hydroceles and other so-called "benign lesions." Surely, if punctures are made, the alert surgeon will examine the scrotal contents most carefully, and if doubt still exists, resort to open operation. How seldom is the question asked, or answered, as to the origin of hydrocele fluid! The number of times when such fluid exists with tumor is far too great to gain an accurate estimate of this tumor association. If such fluid is encountered during orchidectomy, exact mention is seldom made of its presence. Association with *varicocele* is so rare that for practical purposes it can be dismissed as unimportant. It should be remembered that hydrocele fluid can be examined by routine Aschheim-Zondek tests, and possibly aid in the diagnosis of a few cases.

Tumors associated with real or alleged *trauma* have two important implications: the medico-legal aspect, and for the patient the more important question of early and

exact diagnosis. Ewing ('35) made the unqualified statement that "in my experience the inception of no testis tumor could be ascribed to traumatic injury," and maintains that trauma calls attention to more tumors than it produces. The cited case of the college student might easily have been laid to injury from the pommel of his saddle. However, even the scrotal itching did not reveal the pre-existing testis swelling to the patient, who might be assumed to be more alert than the average patient. Another instance, in the author's practice, involved the traumatic displacement of one testis into the suprapubic region, but tumor developed in the *opposite* testis six years later.

While *pain* is not commonly associated with these tumors, its presence can hide the true diagnosis from the most experienced observer. A tumor growing more toward the rete and the epididymis and producing pain might easily be mistaken for a non-specific epididymitis. If a urethral discharge is also present, then the confusion might be further increased. Since such errors can invite tragedy, it is a most strange omission that such cases are not duly recorded. Surely the error cannot be held against the reputation of a qualified urologist. Painful tumors have been described as though they were a passing incident of no importance. In some cases it is quite possible that other characteristics have been so obvious that pain did not cloud the diagnosis.

Severe pain after injury is another matter. An original diagnosis of hematocele is invariably made. Rest in bed, with elevation of the testis, and hot or cold compresses are instituted, ichthyol or some other smelly medicament is applied to entertain the patient, and a long period of several weeks intervenes while lawyers for both parties descend upon patient and attending physician. The fact that a tumor could have been traumatized does not remotely enter the considerations. If hydrocele fluid develops the clinical picture is further confused. The crude procedure of tapping may be resorted to and little or no fluid, or useful information, is obtained, or perhaps bloody fluid is withdrawn. Such procedures confuse the issue more often than not, and delay open surgery, which is the only method of ultimate diagnosis.

Other lesions not connected with inflammatory processes may produce acute scrotal or abdominal pain. *Torsion* of testis tumors has been described twenty-six times. Five of these occurred in abdominal, and two were in inguinal ectopic testes. Gangrene promptly supervenes, but orchidectomy generally settles the primary pathology, while laparotomy will be necessary to clear up the diagnosis of an obscure painful abdominal condition.

The technique and interpretation of hormone studies has not yet reached the point where it can be applied in the early diagnosis of *operable* primary lesions. If a small chorionepithelioma of the testis exists, high titres of luteinizing gonadotropic hormone will be found because of its unsuspected metastases, but not from the obscure primary tumor which is not recognized. This same situation also exists in other highly malignant tumors in which supraclavicular, mediastinal, pulmonary or abdominal metastases bring the patient for examination long before the testis tumor proper is suspected.

The great majority of tumors will be suspected on the critical physical examination of the patient. A high percentage of successful orchidectomies can be performed if physician and surgeon cooperate to the point where all variations from the normal are explored. The sound judgment of a surgeon is to be greatly preferred to the "scientist" who will delay action until a positive Aschheim-Zondek report is made. Such delay is equal to nursing an injured testicle until the tumor diagnosis becomes obvious from its metastases. If the attendant cannot make up his mind, advice should be sought from someone who can. A urologist recently made the pointed statement "if one is not equipped or well informed on testicular neoplasms, do not meddle with them." The issues involved do not appear as dramatic as a possible ruptured appendix, but are far more serious.

A wide variety of specialists are exposed to diagnostic difficulties in the bizarre man-

ifestations of unusual testis tumors and their metastases. Students of *heredity* and *genetics* have the supporting evidence of such tumors developing in identical twins, in fathers and sons. *Obstetricians* probably do not consider the existence of a congenital abdominal ectopic testis tumor in a fetus as one of the rarest causes of dystocia. The *pediatrician* will rarely be confronted with sex precocity of testis tumor origin. However, it has occurred in eight well authenticated cases, while the total of testis tumors in children is in excess of 300. *Gynecologists* will see pseudohermaphrodites, and a wide variety of so-called adenogenital syndromes, as well as obscure surgical conditions, such as ovotestes—some with testis tumors predominating. Recently considerable interest has developed in the separation of dysgerminomata—or true seminomata from the great bulk of ovarian tumors. The *röntgenologist* will be perplexed over pulmonary and mediastinal tumors—apparently metastatic, but the elusive primary tumor will exist in a small scrotal testis or arise from an unrecognized abdominal ectopic tumor. He and the *orthopedic* surgeon may be in doubt regarding the rather rare bone metastases. The *general surgeon* is interested in the abdominal metastases which often compress the intestinal tract and produce symptoms simulating gastric, intestinal and gall-bladder lesions. The thyroid surgeon and the *otolaryngologist* will be confused by supraclavicular metastases and will be frequently surprised when biopsy reports call attention to the testicular primary tumor. The *endocrinologist* is greatly interested in the origin of the gonadotropins, estrins and androgens produced by, or in the presence of, these tumors. He will also be interested in the breast lesions of males. Some of these gynecomastias, especially if associated with chorionepitheliomatous tumors, may produce colostrum.

Eyes have been removed for chorionepitheliomatous metastasis by *ophthalmologists*, before the true testis origin was suspected. *Dentists* have been sorely pressed for an explanation of the failure of a tooth socket to heal. Recurrent bleeding and tumor formation led to biopsy—proving metastatic chorionepithelioma.

Metastasis to the lung, with hemoptysis, has placed some patients in *tuberculosis* sanatoria before the primary origin became evident. Approximately ten cases of combined tuberculosis and cancer of the same testis have been reported. The combination of coexistent pulmonary tuberculosis with testis tumors has been described; however, these as a rule did not cause much delay in diagnosis.

The problems confronting the *medico-legal expert* have already been alluded to. The fact that "pseudo-experts" are allowed to testify in court proceedings has added to the confusion but not the clarification of this subject. Very little fact-finding is evident in many of these reports, and court verdicts based on pure whimsey have frequently been handed down.

Good follow-up records are available only from a few large centers, notably the Memorial Hospital in New York. Reports from other centers where the patients are followed mainly by means of questionnaires are generally incomplete, incorrect, or are lost to record. The importance to smaller Tumor Clinics is equally great and the efficiency and educational value to the attending staff will depend greatly on the energy of the Social Service follow-up. A long-time study of considerable value has been carried out by Swan ('41), who reports, among many others, two testis tumors operated upon in 1925, and the patients still alive and well fifteen years later (January '41). Such reports are usually the work of a person with a single-minded purpose, and prove that good work is being done in the average hospital in medium sized cities. These studies are seldom flattering, but will not fail to be a corrective to the surgeon who is satisfied in seeing the patient leave the hospital alive.

Summary: The cancer-minded physician who makes few sympathetic diagnoses of benign lesions will avoid many pitfalls in the diagnosis of malignant intrascrotal tumors. Concomitant hydroceles and tuberculosis will cause the most common error unless early operations are done. Prompt

exploratory operations are the secret to correct diagnosis for the surgeon and cure for the patient. Trauma tends to call attention to many pre-existing tumors, and the long continued treatment of hematocele is condemned. Minor complaints of pain, and even severe pain, will occasionally cloud the true underlying condition. Hormone assays will not yield valuable data in the majority of *early operable* cases, especially in the common seminomatous types, but will be of great aid in the postoperative management and the estimate of prognosis. Metastases will confuse a wide variety of apparently unrelated specialists. The great variation in these tumors presents many interesting facets of the problem for more detailed study. But "it is not enough to learn the truth; the truth must be put to use decisively."

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DIABETES—

—Concluded from page 80

ties of Minkowski's discovery and Allen's supporting evidence. A few cases performed by experts would lay the foundation for a general surgical practice, since neither the removal of a small section of pancreas from one individual, nor its transplantation into any suitable part, which may be intra-abdominal or elsewhere, of another individual, is beyond the present-day abilities of the modern surgeon. If such a practice could be extended to the general hospitals of the country and adopted as a general cure for severe cases of diabetes (assuming its efficacy), the danger to the race through offspring of these cases would gradually be reduced to a minimum and we should soon see a decrease instead of an increase of diabetes, and yet we would be able still to retain all of the benefits to the individual of the modern treatment by insulin.

Operations for adenomas and hyperinsulinism offer opportunities for securing material for the grafts, and the surgeon will find many other ways, but it is not to be assumed that a pioneer operation such as this can be perfected at the first trial. The surgeon must do his part and use all his resources to make this operation successful. I can only point the way and state the principles involved as well as prophesy the results to be obtained. The surgeon may find, for instance, that in the transference of a piece of flesh from one individual to another individual of the same species, as man to man, that the blood may have to be typed as in transfusions; or the flesh of one individual may be allergic to that of another of the same species. And so on; but this must be the task of the surgeon and not of the diabetic specialist, and the credit, if any, for this new surgical operation for diabetes will go to surgery, while the credit for pointing out a new method of eradicating diabetes from the human race, by using this procedure, will surely be given to specialism.

FIVE YEAR SURVIVALS OF PATIENTS TREATED AT THE CANCER CLINIC OF THE SOUTHSIDE HOSPITAL

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IN May, 1934, a Diagnostic and Therapeutic Cancer Clinic was established at the Southside Hospital, Bay Shore, N. Y. In July, 1940, we had the first opportunity to determine the number of patients alive and well five years after treatment. These cases have been reported to the American College of Surgeons.

***Editor's Note.*—In the development of the lay educational program of the New York State Committee of the American Society for the Control of Cancer, we have often been told that cancer is an incurable disease and that any attempt to control it was bound to result in failure. Many of us felt that such a defeatist attitude was unwarranted, particularly in view of the reports made public by the American College of Surgeons, which this year records 36,087 five year survivals of patients with histologically proved tumors. We have felt that local figures are more convincing than figures compiled from the entire country and with that in mind, we began in 1930 a search for patients who had been treated in their own communities by the physicians practicing in those communities and who had survived five years. This investigation has been carried on in Rochester with the cooperation of the Rochester Hospitals, chiefly because Rochester is the headquarters of the New York State Committee and therefore allows the expenditure of the necessary time more readily. The results have been published in this Journal from time to time since 1932.**

We have consistently recommended that a similar investigation be carried on in communities other than Rochester and have been able to publish one or two reports from the tumor clinic of the University Hospital, of Syracuse. This year we are glad to publish this report from the Cancer Clinic at the Southside Hospital, Bay Shore, New York.

During the first year of the operation of this Clinic, May, 1934, to July, 1935, thirty-six cases of cancer were treated: twenty-six cases of cancer of the breast; two cases of neurogenic sarcoma; two cases of melanotic sarcoma; and six cases of carcinoma of the cervix of the uterus.

Four patients with cancer of the cervix are reported to be living and well at the end of five years. This is an unusual figure (66.66 per cent) and is, no doubt, due to the fact that all of the patients were in stage I or II. While the cervix itself in all cases was involved to a fairly large extent, in no case was there palpable extension to the adnexa or fixation of the uterus.

One patient returned to the Clinic shortly after July, 1940, with pulmonary metastasis from cancer of the breast, treated in 1934. This patient is not included in this report.

Of the total number of patients, eight are known to be living without recurrence at the end of five years (22.2 per cent) as follows:

Treatment began	Organ	Radiologist or surgeon	Pathologist
February, 1933	Cervix	Kaplan	St. Vincent's Hospital, N. Y. Squamous cell epithelioma, grade 3
May, 1934	Breast	Murphy	Trygstad. Diffused scirrous carcinoma, grade 2 or 3
July, 1934	Malignant melanoma	Murphy	Trygstad
August 1934	Breast	Murphy	New York State Institute for the Study of Malignant Disease, Buffalo. Duct cell carcinoma
December, 1934	Cervix	Feuerstein	Trygstad. Solid growing carcinoma, squamous type, grade 2
December, 1934	Cervix	Feuerstein	New York State Department of Health, Epidermal carcinoma. Institute for Study of Malignant Disease, Buffalo, Mucous membrane epithelioma
March, 1935	Neurogenic sarcoma	Hildreth	Trygstad
April, 1935	Cervix	Feuerstein	Trygstad. Squamous cell epithelioma

RESEARCH

Proceedings of the Research Society of the Long Island College of Medicine, Hoagland Laboratory, November 12, 1941 (abstracted).

THE OBTURATOR-EPIGASTRIC OR EPIGASTRIC-OBTURATOR ARTERIAL LOOPS—IMPLICATIONS

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DURING the past three years a study was made of the arterial pattern surrounding the femoral ring. The definite arteries here are the pubic branches of the inferior epigastric and the obturator arteries. Of 82 cadavers, 50 showed the derivation of the obturator artery from the hypogastric system and 32 from the external iliac; hence a derivation frequency of 37 per cent for the obturator from the external iliac system.

Of 46 arteries derived from the external iliac system, 42, or 91 per cent, came from the deep epigastric; 3, or 7 per cent, came from the external iliac proximal to the origin of the deep epigastric; and 1, or 2 per cent, from the femoral artery. Of these 46 abnormal arteries derived from the external iliac system, 36 lay laterad, 7 lay transad, and 3 lay mediad to the ring, a positional frequency respectively of 78, 15, and 7 per cent. It is clear that the abnormal artery will lie most frequently lateral and least frequently medial to the ring; and that it will more frequently lie across the ring than medial to it.

We may conclude that there is a basic arterial pattern in the vicinity of the femoral ring; that the primary relations of the obturator artery are with the hypogastric stem; that the derivation from the external iliac system of an obturator artery is due to secondary enlargements of anastomotic loops normally present and the original stem of the obturator is very greatly diminished or lost; that the anlage of these abnormal enlargements is laid down in three definitive streams and these streams course laterad, transad and mediad to the femoral ring; and that the secondary enlargements of these streams produce the abnormal artery which is most frequently found lateral to the ring, next in frequency across the ring, and least frequently medial to the ring.

Discussion by Robert F. Barber, M.D., Department of Surgery, Long Island College of Medicine:

In the pre-aseptic days of surgery it was extremely important to know the vagaries of smaller arteries about the femoral opening. Many incisions were made blindly through the femoral ring and fatal hemorrhage resulted in some instances for reasons that are obvious, from the variations in distributions of the obturator artery which Dr. Blumberg has described.

The facts brought out as to distribution are important in explaining the collateral circulation which occurs in aneurysm or occlusion of the main arterial trunk in the iliac artery or the common femoral artery. This artery, the obturator, is intimately concerned in the establishment of collateral circulation and readily assumes great size as compared with its normal caliber. This is also true for the other arteries which enter into the anastomosis. For this reason, when operating in the presence of well established collateral circulation, the surgeon must be constantly alert and cognizant of the presence of enormously dilated blood vessels in this region.

LEPTOSPIROSIS IN NEW YORK CITY

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BLOOD samples from 1351 individuals were examined, by means of the agglutination test, for evidence of past infection with leptospirae. Of these, 11 specimens gave a positive reaction and were from persons with a history of past illness consistent with Weil's disease; there were 40 instances of weaker positive reaction in which there was no history of significant past illness. These are difficult to interpret. The strong positive reactions were all among those whose work exposed them to rat-infested surroundings,—sewer workers and fish-cutters. In only two of the positive reactors had the diagnosis of Weil's disease been made during the illness. Weil's disease, although endemic and sporadic in New York City, has usually been unrecognized.

The factor of chance, even in exposed individuals, plays a large part in determining infection. The presence of antibodies for members of the typhoid group, for the brucellae, or for the Wassermann antigen did not, in our experience, cause false positive reactions with the leptospiral antigens in the agglutination test. No reactions against the canicola antigens used were found in the sera from 59 individuals whose work brings them into frequent close contact with sick dogs.

An agglutinin titer of 1/1000 or more indicates present or recent leptospiral infection, but any titer, however low, found by one experienced with the test, merits investigation.

The attending physician should be alert to confirm or exclude the diagnosis of leptospirosis on encountering an acute febrile illness, even without jaundice, in one whose work is likely to involve exposure to rat-contaminated surfaces, particularly if the illness resembles influenza, pneumonia, meningitis, or enteric fever, or if renal insufficiency or hemorrhagic tendency is present.

Discussion by Ralph S. Muckenfuss, M.D., Director of Laboratories, Department of Health, New York City:

Attention should be called to thread-like processes attached to red cells that may be seen in the dark field examination of fresh blood. These may have many of the appearances of leptospirae, and could very easily give rise to a mistaken diagnosis were reliance placed upon microscopic examination alone.

The paper reported seems to bear out the experience with other diseases, that a careful search reveals more cases than were previously suspected to exist.

REACTIVE HYPEREMIA IN HUMAN SKIN; SEASONAL, SEGMENTAL, AND AGE VARIATIONS

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and **F. I. FOSTER, B.S.**
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THE immediate object of this study was to establish a simple reliable technique for the estimation of local reactive hyperemia in human skin. The procedure consists of applying a weight to the skin of the ventral surface of the forearm for a period of time just sufficient to elicit a response with end-point characteristics. This consists of a hyperemia localized to the area of application of the weight, of even in-

tensity, texture, and with discrete edges. The length of time in seconds it takes to produce such a response is known as the *threshold-time*. The length of time it takes for this response to fade to the color of the surrounding skin is known as the *clearing-time*, which normally equals or slightly exceeds the threshold-time.

A gradual and progressive change was noted in both threshold and clearing-time as summer ended and fall advanced. In September the threshold was thirty seconds, and the clearing time about forty seconds. By December these values had more than doubled, only to fall to previous levels again by June of the next year. Correlation was found to exist very well with outside temperature and somewhat with indoor humidity.

In a segmental study of the threshold it was found that there is a gradual rise along chronological body segments until in the dorsum of the feet the threshold is eighty-five seconds and the clearing-time is one hundred and ten seconds. Such a gradient when plotted parallels the gradient of surface temperatures. With advancing age there is a remarkable rise of the threshold and especially the clearing-time limited to the lower extremities. This suggested a marked slowing of the cutaneous circulation of the aged in this region.

These findings were discussed from the viewpoint of an "H" substance in the skin, oxygen concentration in the blood, and blood flow as it affects the skin.

DISCUSSION by Israel Muss, M. D., Department of Physiotherapy and the Peripheral Vascular Disease Clinic, New York Polyclinic Hospital.

With organic occlusion of the lower extremities even sympathetic nerve block will not cause an increase in blood flow. With the use of therapeutic agents hyperemia is largely localized to the vessels beyond the arterioles. The clear presentation of seasonal, segmental and age changes in these vessels ought to help us not only in the study of peripheral vascular disease but in the discovery of new therapeutic agents.

New Medical Officer Examination Announced by Civil Service Commission

THE Government is faced with a critical need for physicians to serve as Associate Medical Officers in the Federal civil service in such agencies as the Veterans Administration, the U. S. Public Health Service, the Indian Service, and others. In August of 1940, the Civil Service Commission announced an examination (Announcement No. 101) to fill Medical Officer positions of various grades in the Government service. This examination has been closed and reannounced (Announcement No. 130) with certain modifications. Applications will be accepted until further public notice.

The examination covers three grades: Associate Medical Officer, $3,200 a year; Medical Officer, $3,800 a year and Senior Medical Officer, $4,600 a year. Applicants for the Medical Officer grade must have graduated from a medical school (Class A) since May 1, 1920, and for the Associate grade, since May 1, 1930. No specified time limit is set for graduation for the Senior grade.

No written test is required. Applicants are rated upon their education and experience. Senior Medical Officers must have had professional experience in one of the following: Aviation medicine, cardiology, and public health, (general). Qualifying optional branches for the Medical Officers and Associate Medical Officers include: Aviation medicine; cardiology; dermatology; eye, ear, nose, and throat (singly or combined); general practice; industrial medicine; internal medicine and diagnosis; medical pharmacology; neuropsychiatry; pathology, bacteriology, and roentgenology (singly or combined); public health; surgery; tuberculosis; urology; and cancer. The maximum age limit for all grades has been raised to fifty-three.

Because of the demand, persons who can qualify for the Associate Medical Officer grade, are urged to apply. Applicants for this grade need not have had experience other than 1 year of interneship, general rotating, or in an optional branch. For this grade, applications will be accepted from persons who are now serving but who have not yet completed interneship; but they must complete their interneship before entering on duty.

CONTEMPORARY PROGRESS

NEUROLOGY

Diagnosis and Management of Subarachnoid Hemorrhage

I. J. SANDS (*Archives of Neurology and Psychiatry,* 46:973, December 1941) reports a series of 120 cases of subarachnoid hemorrhage treated in the hospital. Subarachnoid hemorrhage, he notes, "is due to the presence of blood in the subarachnoid space and is a symptom, not a disease entity." In the 120 cases reported, the cause could not be determined in 27 cases; the symptoms in these cases were mild. The chief causes in the remaining cases were trauma (9 cases), arteriosclerosis (30 cases), infectious diseases (16 cases), intracranial aneurysm (25 cases); less common causes were massive cerebral hemorrhage (2 cases), intraventricular hemorrhage (3 cases), blood dyscrasias (4 cases), cerebral vascular neoplasm (4 cases). The clinical symptoms characteristic of subarachnoid hemorrhage, whatever the cause, are headache, nuchal rigidity, a mild Kernig sign, hyperemia of the disks, mild leukocytosis, mild elevation of temperature, disturbance of consciousness, sometimes coma, slow pulse and bloody spinal fluid; in some cases symptoms referable to "irritation of certain parts of the nervous system" may be present. As a rule the onset of symptoms is sudden, usually after physical exertion or emotional excitement, but occasionally prodromal symptoms may be noted. In the treatment of patients with subarachnoid hemorrhage, the important factors are: relief of headache, reduction of increased intracranial pressure, control of excitement, adequate feeding, surgery as indicated, and the rehabilitation of the patient. For the relief of headache mild sedatives may be sufficient; if not chloral hydrate and the barbiturates may be employed, but morphine should not be given. For the reduction of increased intracranial pressure, hypertonic solutions of dextrose or sucrose are often effective; or magnesium sulfate may be given intramuscularly; the author has found caffeine with sodium benzoate of special value in comatose patients. There is considerable difference of opinion in regard to the use of lumbar puncture for the reduction of intracranial pressure in subarachnoid hemorrhage. The author is of the opinion that it should be employed for this purpose only when the cause is unknown or the hemorrhage is due to trauma or arteriosclerosis; in other cases lumbar puncture should be done for diagnosis only. The author has found it best to withdraw only 5 to 10 cc. spinal fluid at one time, even in those cases in which lumbar puncture is indicated for treatment. The intake of fluid should be limited to 1,200 cc. daily. For allaying excitement, paraldehyde by rectum or by intramuscular injection has proved "the drug of choice" in the author's experience. Occasionally sodium amytal is given intravenously; if so, it is injected very slowly, giving an average dose of 5 to 7½ grains in not less than ten minutes. In a few cases large doses of salt, dextrose and vitamin B complex have been of aid in reducing excitement. Feeding the patient may be a difficult problem, especially as many of these patients show "varying degrees of disturbances of consciousness;" in some cases tube feeding is necessary. It is important, however, that these patients be given sufficient calories and adequate salt and vitamins. Patients should remain in the hospital at least four or six weeks and need a "convalescent period" of three to six months after discharge from the hospital. Of the 120 patients in the author's series 41 died and 79 recovered under hospital treatment; the highest mortality occurred in the groups in which the subarachnoid hemorrhage was due to infectious disease (9 deaths in 16 cases) and to intracranial aneurysm (12 deaths in 25 cases),

or was associated with massive cerebral or intraventricular hemorrhage or with blood dyscrasias (all patients died in these groups). In the arteriosclerotic group only 3 of 30 died while under treatment in the hospital.

COMMENT

The commentator has in preparation a larger series of cases, limited entirely to apparent rupture of intracranial aneurysms. In general we agree with the causes of intracranial bleeding as set forth by the author. He wisely stresses the physical signs as resulting from bleeding in the subarachnoid space from any cause, which signs are those essentially of meningeal irritation.

The frequency of the causes depends on individual experience. In certain services trauma may be the major factor, although in these cases the signs are overshadowed by obvious evidences of head trauma. In patients in coma from any cause, or especially following head injury, painful stimuli fail to produce the expected rigidity of the neck and Kernig's sign.

The most striking picture is that produced by a rupture of an intracranial aneurysm, particularly involving the base of the brain. In this instance the signs of meningeal irritation are most marked and the clinical diagnosis most obvious.

There are several points on which the commentator differs with the author. In the first place the withdrawal of cerebrospinal fluid is not only diagnostic but of therapeutic value in a ruptured intracranial aneurysm. No harmful results have ever been observed from repeated spinal taps. It is obvious that taps are not done in an attempt to withdraw blood from the subarachnoid space but simply to alleviate the secondary meningeal reaction which takes place.

There is disagreement as to the interdiction of the use of morphine in all cases of intracranial bleeding. We are in agreement if pontine lesions are suspected, in intraventricular hemorrhage, or in possible massive intracerebral hemorrhage. However, we believe it can be used with safety in ruptured intracranial aneurysms at the base of the surface of the brain. We know of no agent which produces such relief from pain and induces such a degree of physiological rest as morphine when prescribed in this type of bleeding. A ruptured aneurysm is the only intracranial condition in which morphine can and should be used.

The third point is the use of hypertonic solutions when there has been a bleeding intracranial vessel. In our opinion it is inherently dangerous, a point established by E. J. Browder in cerebral trauma.

H.R.M.

Pathology of Amyotrophic Lateral Sclerosis

G. WOHLFART and R. L. SWANK (*Archives of Neurology and Psychiatry*, 46:783, November 1941) report a study of the pathological changes in 5 cases of amyotrophic lateral sclerosis; in each case, tissues from various parts of the central and the peripheral nervous system and skeletal muscles were examined. In all cases there was degeneration of corticospinal fibers in the spinal cord and brain stem, degeneration of ganglion cells in the spinal cord and nuclei of the cranial nerves, degeneration of peripheral nerve fibers in the ventral roots and changes in the spinal musculature characteristic of degeneration of anterior horn cells or peripheral nerve fibers. Measurement of nerve fibers showed that it was the large fibers in the ventral spinal roots that were affected and had disappeared, while the small fibers ap-

peared normal. It was also found that the large nerve cells of the ventral horn were affected rather than the small cells. In the corticospinal tract accurate measurements of nerve fibers were impossible because of the glial tissue, but as far as could be determined the large fibers in this tract were also damaged to a greater extent than the small fibers. The posterior spinal roots appeared normal in all cases. In 2 cases, bilateral degeneration of the pyramidal tracts was marked; in these muscular hypertonus had not been present during life, the deep reflexes had been normal or hypoactive and the extensor plantar responses absent. In these cases there was more extensive damage in the large fibers of the ventral roots than in any of the other cases. The authors suggest that: "It might be inferred from this that signs of degeneration of the pyramidal tracts are dependent for their production on the large ventral root fibers."

COMMENT

This interesting syndrome has recently attracted attention because of therapeutic gestures, directed toward its arrest and possible cure. Although ordinarily fairly simple of diagnosis, at times unless care be taken early confusion may be aroused.

Weakness, atrophy and fibrillary tremors are indicative of chronic damage to the anterior horn cells and should always arouse suspicion of amyotrophic lateral sclerosis. If, along with evidence of injury to the anterior horn cells, very active reflexes are found, the possibility of amyotrophic lateral sclerosis is even more certain. It cannot be stressed too strongly that in the absence of demonstrable sensory changes the occurrence of marked muscular atrophy in the presence of hyperactive reflexes is pathognomonic of amyotrophic lateral sclerosis, and especially so when limited to the upper extremities.

A student's favorite question is the "why" of hyperactive reflexes if there exist signs of disease of the anterior horn cells as well as of the pyramidal tracts. This is easily explained if one remembers that damage is usually confined, within any given segment, to a number of scattered cells, many of the intervening ones retaining their integrity. Any positive influence or "lack of inhibition" capable of producing pyramidal tract signs can, of course, be mediated through the intact cells. If, on the other hand, all of the anterior horn cells supplying a part were damaged, there would be complete paresis and loss of reflexes, as has been observed in one of our cases.

Because of the variation found at times in the clinical picture, the pathologic findings observed by these authors are interesting and informative.

H.R.M.

Vitamin E and Nervous Diseases

R. W. HARVEY and P. B. HUME (*California and Western Medicine,* 55: 293, December 1941) report the use of vitamin E in the treatment of 16 cases of amyotrophic lateral sclerosis, 9 cases of progressive muscular atrophy, 20 cases of progressive muscular dystrophy, 3 cases each of amyotonia congenita and myotonia dystrophica, one case of dermatomyositis, and 18 cases of multiple sclerosis. Most of these patients were not hospitalized; they were all given diets rich in vitamin E, supplemented in many cases with wheat-germ oil or Wesson oil; those who had not previously been "treated vigorously" with vitamin B were given vitamin B complex or thiamin chloride. Synthetic vitamin E (alpha-tocopherol) was given in daily doses of 0.03 to 0.05 gm., usually by mouth; in a few cases intramuscular injection was employed at first, but was abandoned "for lack of evidence in its favor." Improvement was recorded on the basis of neurological and muscle-function examination and creatin-creatinine studies, not on the basis of subjective improvement reported by patients. In 4 of the 16 patients with amyotrophic lateral sclerosis, the disease "appeared to be arrested." Only one of the 9 patients with progressive muscular atrophy showed definite improvement, although 5 other patients reported subjective improvement. Four of the 20 patients with progressive muscular dystrophy showed improvement with a considerable increase in strength in 2 instances. Two of three patients with amyotonia congenita showed "slow but steady improvement;" none of the patients with myotonia dystrophica or dermatomyositis showed any improvement. Two of the eighteen patients with multiple sclerosis showed remissions of six and twelve months respectively, but since such remissions occur spontaneously, they cannot be attributed to the treatment. The authors are of the opinion that the types

of nervous disease treated represent conditions that "are not reversible;" and that the most that can be expected from vitamin E therapy is "retardation of the disease process."

COMMENT

The reviewer is in agreement with the general conclusions developed by these authors. Because of the subjective improvement obtained in the early stages when synthetic vitamin E is used, even though continued use may not produce a cure, it is our opinion that it should be used.

H.R.M.

The Intracranial Use of Sulfadiazine

E. F. HURTEAU (*Canadian Medical Association Journal*, 46:15, January 1942) reports animal experiments to determine the rate of absorption of various sulfonamide drugs when applied to a cerebral wound, and the effect of sulfadiazine on the meninges and cerebral parenchyma. In these experiments (on cats), an area of cerebrum was excised by the use of suction; no electrocautery, silver clips or sutures were used in these wounds. In determining the rate of absorption of the various drugs, the drug to be tested was "blown over the wound" in the form of a dry powder. It was found that sulfanilamide is the most rapidly absorbed, sulfathiazole second, sulfadiazine third, and sulfapyridine the least rapidly absorbed. In the cerebral wounds to which sulfadiazine was applied, careful histological study showed that it caused no neuronal destruction, no glial reaction, and only a slight and negligible "foreign body reaction" in the meninges. All the experimental wounds in the cerebrum showed "a typical interstitial reaction to circumscribed trauma," which was no more extensive when the sulfonamide drugs were applied; they had no undesirable effect on the final healing of the wound. In some instances the use of a sulfonamide that is absorbed relatively slowly, such as sulfadiazine, may be of definite advantage. Sulfadiazine has been shown to have a bacteriostatic effect on a wider variety of organisms than the other sulfonamides; hence it may "prove to be the drug of choice for local application." In some infected wounds a combination of sulfadiazine and sulfanilamide may be used, the latter to give a high concentration of the drug immediately, the former, a slower absorption to combat latent infection and infection due to a variety of organisms. If this mixture in the form of a dry powder is sprayed over a lacerated brain so as to form a thin even film, sulfanilamide, it has been found, persists for less than eleven days, sulfadiazine for less than twenty-three days. Used properly, the author believes the drugs of the sulfonamide group are of definite value in neurosurgery, and particularly in "military neurosurgery."

COMMENT

The results of these experiments are important in our present state of war, because of the apparently complete harmlessness of this drug when used as described.

H.R.M.

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PHYSICAL THERAPY

The Practical Application of Fever Therapy in Military Medicine During Active Warfare

K. PHILLIPS (*British Journal of Physical Medicine*, 4:173, December 1941) discusses the application of fever therapy produced by physical means to the needs of military medicine, based on his own experience with fever therapy in a period of ten years in which over 12,000 fever treatments have been given without a death attributable to the therapy employed. In regard to technique of fever therapy in military camps, he notes that almost any type of "shortwave radiothermionic therapy apparatus" can be used, if it provides an output of 400 watts or more; a meter length between 16 and 24 meters is most efficient. One type of short-wave therapeutic unit that may be employed can be rapidly converted into a short-wave code transmitting

unit, if necessary for military purposes. Technicians can be trained from the military personnel; one advantage of military fever therapy is that the persons to be treated are from a group previously chosen for physical fitness, hence the "physical risks" are less than in civil practice. For fever treatment, various types of insulating material may be used—rubber sheeting, blankets, terrycloth, or other wool or cotton material available. Sedatives may be necessary during long fever treatments; fluids and salt should be given to maintain fluid balance and compensate for rapid loss of chloride. Temperature (rectal), pulse rate and respiration should be recorded every fifteen minutes. Ice-water sponges should be applied to the face and forehead, or if fans are available that can be placed at each side of the patient's head, sponging the face with cold water is sufficient. After the treatment, the patient should be kept in bed for four or five hours until the temperature returns gradually to normal. The use of fever therapy reduces the time necessary for treatment of both early syphilis and gonorrheal infections. In syphilis arsenicals are given during fever therapy "at the temperature peak," and the heavy metals between fever treatments. The author's experience has shown that such a combination of fever and drug therapy markedly reduces the time necessary to render the serology negative as well as to clear up the symptoms; and that follow-up of patients so treated for five years or more has shown "very little tendency to clinical or serological relapse." In gonorrheal infections, fever therapy, combined with chemotherapy with the sulfonamides, also shortens the time necessary for treatment of even acute gonorrheal infections; and is still more important in more chronic cases and such complications as prostatitis and arthritis. During mobilization of troops, respiratory infections and muscular and joint syndromes (rheumatic, myositic and arthritic) are of frequent occurrence. In these conditions short wave therapy applied locally or generally is of definite value. In muscular and joint diseases, the application of an induction coil to the affected part or general fever therapy, if involvement is multiple, gives more rapid relief than other available remedies.

COMMENT

Fever therapy has so definitely established its place in the treatment of gonorrhea and syphilis that it should have serious consideration when it can be used as described in this article. The only exception to the technic mentioned by the writer is the fact that there is an increasing objection to the use of any short wave apparatus during warfare and in these present times it would be a less criticised technic to induce hyperpyrexia by cabinets or apparatus that create hot, highly humidified air. The same temperature can be created and a constant-reading, electrical, rectal thermometer can be used throughout the entire treatment, whereas such a thermometer can not be used when short wave is employed.

The combination of fever and chemotherapy has certainly produced the best and quickest results. Therefore, when such cases come for treatment in an army hospital, the sooner they can be returned to duty, the better. The writer's plea for greater use is well worth while.

N.E.T.

The Role of Spas in Medical Preparedness

W. S. McCLELLAN (*Archives of Physical Therapy,* 22:656, November 1941) presents an analysis of the facilities for spa treatment in the United States in view of the importance of the spas for maintaining the health and treating the diseases and injuries of both the military and the civil population. The data show "spa facilities" in 103 localities in 33 states, with accommodations for 57,491 patients; of these spas, 83 have accommodations for less than 500 patients each, while only 11 can care for 1000 or more patients. In 11 states, there are accommodations for 1000 or more patients, and the spas that can accommodate 100 or more patients are located in 9 of these states. In considering the location of the spas in relation to the Army corps areas, the author finds that with the exception of the First Corps Area, each area has accommodations for over 2,000 patients. The types of mineral waters found in these spas range from "lightly mineralized thermal waters to strong brines containing as high as 15 per cent mineralization. Chlorides, sulfates and

bicarbonates of the bases sodium, potassium, lithium, calcium, magnesium, iron and others are found in various combinations." Gaseous constituents, when present, also influence the therapeutic effect, such as carbon dioxide, hydrogen sulfide and radon. In most spas, the waters are used both externally and internally. The external use includes baths, hot packs, water rubs and douches, and in some cases nebulization and inhalation. In addition, facilities for massage, electrical and light therapy are usually available, so that spa treatment includes "a regulated program of these various treatments with regulated diet, rest and recreation." Spa treatment is indicated in many chronic conditions affecting the cardiovascular, locomotor and gastro-intestinal systems; and also for the convalescent care of patients recovering from acute diseases or surgical operation. In some spas, physicians who are specialists in balneotherapy are members of the staff of the institution; in others, the physicians of the community are familiar with the waters and the facilities for treatment at each spa and can "adequately direct" the treatment indicated for each patient. Spa treatment is of special value to industrial workers with cardiac or rheumatic conditions, which are much benefited by a course of spa treatment once or twice a year so that the worker can continue his occupation; spa therapy is also of value for "the more rapid rehabilitation of the sick or injured worker," and the spa regimen is of value during workers' vacations, so that they may return to work in better physical condition. The various methods of therapy available at the spas are of definite value in facilitating the treatment and reducing the disability of war wounds—whether in the armed forces or in "civilian casualties;" and also for the care of convalescents from diseases developing among the armed forces. The author also suggests that the spas might be used by the personnel of the army and navy on furlough, as providing an opportunity for recreation that would return them more fit for duty.

COMMENT

It is to be regretted that the American public has never appreciated that American spas are as good as, if not superior to, many of the widely publicized foreign ones. Since these foreign spas are not available, special effort should be given to convincing the chronically invalided people of not only this country but Central and South America that we have in the United States efficient spas. None of these spas lacks physicians who know what they are doing in prescribing treatments. Anyone is safe to go to the nearest spa and place himself in the hands of doctors in charge and feel sure that he will get good results.

In the post-war period people will be looking for just such treatments and if the army does not fill up the spas with rehabilitation cases, a greater effort should be made to give the method of treatment wider publicity.

N.E.T.

Electrotherapy in Flaccid Paralysis

P. LIEBESNY (*Archives of Physical Therapy,* 23:23 January 1942) reports experiments and the clinical use of electrotherapy in flaccid paralysis. He has employed a progressive Leduc current—an interrupted galvanic current—with 40 interruptions per second. In experiments on the gastrocnemius muscle of the frog, it was found that this progressive Leduc current could induce a response in the muscle after it had been exhausted by prolonged stimulation by the progressive straight galvanic current and failed to respond to further stimulation by this current. Other experiments were made on the paralyzed muscle of a rabbit; flaccid paralysis of both hind legs of the animal was produced by the method of Ehrlich and Brieger; one leg was treated by stimulation by a straight galvanic current of 2 to 10 milliamperes; the other by a progressive Leduc current of 40 interruptions of the same intensity; with both currents treatment was given for ten minutes daily. The leg treated with the straight galvanic current became contracted and wasted and the electrical excitability of the muscle disappeared. The leg treated by the Leduc current remained electrically excitable until the day of the animal's death, showed less wasting and no contracture. The author has used this current in treating more than 1,000 cases of flaccid paralysis due to injuries to the peripheral nerves in soldiers wounded during the first World War; and in 134 cases of infantile paralysis. The results have

been "very satisfactory." In the treatment of infantile paralysis, underwater exercises are of definite value, but "paralyzed muscles that are unable to perform any spontaneous contraction cannot be improved by this kind of treatment." In cases of this type treatment with the progressive Leduc current of 40 interruptions per second has proved, in the author's experience, to be the "therapy of choice."

COMMENT

The Leduc current has proven its worth in the notable extent to which it has been used in France. In this country it has not had sufficient attention paid to it. There have been many experiments similar to the one mentioned by this author which prove that it is probably the most useful low voltage current.

The interrupted galvanic current has another quality besides the one mentioned in that when the speed of interruptions is steadily decreased in an examination of a muscle for possible paralysis, a stage will be reached where a normal muscle will cease to respond and the paralyzed muscle will continue to respond. This difference in reaction to the Leduc current has been used for years in France as a method of diagnosis. It has been considered by those who use it a much better test than the reaction of degeneration.

In the use of the current as described in this article, although not mentioned in this abstract, it is of great importance to pay attention to the polarity effects.

N.E.T.

The Fibrositic Headache

D. PENNINGTON (*British Journal of Physical Medicine,* 4:159, November 1941) states that a chronic frontal headache, most marked in the morning, and associated with intermittent attacks of giddiness or numbness and tingling in one or both hands (felt mostly when the patient has been in bed for an hour or two), is characteristically due to fibrositis in the muscles of the neck. In these cases, the headache is relieved if the head is held up and intensified if the head is held down. Examination shows fibrositic nodules and "abnormal pressure points" in the neck. Various methods of physical therapy are indicated in these cases, including manipulation, "in practiced hands;" six treatments at three-day intervals usually relieve the worst symptoms; this should be followed by massage "to remove all trace of nodulation." If the patient has a thick-set muscular neck, or a short fat neck, ionization with histamine (in patients who tolerate it well) or with salicylates is indicated before beginning manipulation and massage.

COMMENT

In these hectic days probably seven out of ten otherwise normal people have spastic muscles in the neck which give the headache that the author mentions. After rising in the morning normal exercise of the neck loosens up the spasticity to some extent and the patients do not notice the rigidity of the neck muscles. As the author says, manipulation in "practiced hands" is most effective and is what is given by osteopaths. However, it should be added to what he says that before any manipulation or massage is given, heat, as from an incandescent bulb in a suitable reflector, should be applied to the affected part.

In this country, those who appreciate the value of the current and know how to use it realize that static electricity is far superior to any other method of treatment. When this is not available, interrupted galvanism can be used or the sinusoidal current. The idea is to make the muscles contract to get rid of the fibrositic nodules within them. Such a method is superior to massage.

N.E.T.

PUBLIC HEALTH, INDUSTRIAL MEDICINE & SOCIAL HYGIENE

A Comparative Study of Laboratory Tests for Syphilis

E. W. BENNETT and H. H. HOWZE (*Medical Bulletin of the Veterans' Administration,* 18:287, January 1942) report the comparative results with the Wassermann, Kahn and Hinton tests in 3,485 cases. All three tests were positive in 201 cases; there was no case in which the Wassermann test alone was positive. There were 43 patients showing both the Kahn and Hinton tests positive, but a negative Wassermann; of these 36 had a clinical history or clinical symptoms suggestive of syphilis; there was no clinical evidence of syphilis in the other 7 cases. There were 6 patients with the Kahn test alone positive; and 4

patients with the Hinton test alone positive; of the latter 3 had some clinical evidence of syphilis. From these results the authors conclude that the Kahn and Hinton tests are more sensitive than the Wassermann test, and they give an occasional false positive; the Wassermann test is "indispensable" in the routine diagnosis of syphilis, but it should be supplemented by one of the other tests as "an aid to diagnosis in the more obscure cases." It is the authors' opinion that the Kahn test is as accurate as the Hinton test, and is to be preferred because of its "more common usage and simplicity."

COMMENT

Evaluation studies of the various serological tests used for the diagnosis of syphilis should be a routine procedure in all laboratories performing such examinations. It is desirable that the optimum balance between the sensitivity and the specificity of tests in use be mentioned.

F.L.M.

Epidemiology of Primary and Secondary Syphilis in New York City

BRUCE WEBSTER and E. I. SHELLEY (*American Journal of Public Health,* 31: 1199, November 1941) report a study of contacts of 269 patients with primary or secondary syphilis admitted to the syphilis clinic of the New York Hospital; this hospital is a voluntary hospital without official connection with the City Department of Health, although some cases are referred to the syphilis clinic by the Department. The 269 patients with early syphilis named 663 contacts; 541, or 81.7 per cent of these contacts, were traced and examined. Colored males were the most difficult contacts to trace, only 72.4 per cent having been examined. Examination showed that 172 of all contacts traced had infectious syphilis (cases of late syphilis excluded). In addition the contact cases were questioned in regard to persons exposed by them, and 95.5 per cent of these "contacts of contacts" were traced and examined; 52 cases of infectious syphilis were found in this way. Thus as a result of the contact investigation of the 269 original cases 224 new cases of infectious syphilis were found and brought under control and treatment, i.e., 83.3 new cases for every 100 original cases. The cost of this investigation was approximately $18 per contact found to have infectious syphilis. The authors conclude from these studies that the epidemiological investigation of cases of infectious syphilis is "both feasible and financially possible" for a voluntary hospital in a large metropolitan area, and that such an investigation of contacts of cases of infectious syphilis "is a direct responsibility of the clinic or individual undertaking the treatment of these cases."

COMMENT

This is an excellent demonstration of how a clinic operated by a voluntary hospital can promote the public health movement aimed at control of this disease. Of particular interest is the carefully evaluated cost of case finding. Early infections are best uncovered by these methods.

F.L.M.

A New Sulfhydryl Solution for The Treatment of Burns

R. R. MELLON (*Industrial Medicine,* 11:14, January 1942) reports a new sulfhydryl solution in the treatment of burns; this solution has been prepared at the Western Pennsylvania Hospital (Pittsburgh) in cooperation with the Mellon Institute; it contains calcium as well as sulfur and is known as hydrosulphosol. On dilution or exposure to the air, a precipitation of colloidal sulfur forms, and it is this precipitate which is responsible for the formation of a flexible eschar when the diluted solution is sprayed over a burn. Hydrosulphosol has been employed in the treatment of 150 industrial burns—both chemical and thermal burns—by A. G. Cruthirds of Phoenix, Arizona and W. W. Pierce of Los Angeles, Calif., who have reported their results to the author. As a rule a 50 per cent solution of hydrosulphosal in water is sprayed on the burned surface until a good eschar forms. Dr. Cruthirds reports that many of his cases were treated without débridement or even opening of blisters in steam burns; in the latter case the blisters absorbed, and healing was complete in eight days. He found that pain was relieved "rather promptly" and no infection resulted. Dr. Pierce employs dé-

bridement more frequently, and has found the 50 per cent solution somewhat irritating to the denuded surface; however, the pain disappears as the eschar forms. A weaker solution may be employed in such cases, unless anesthesia is necessary for the surgical procedures when a concentrated solution is employed. In cases where débridement is done the application of hydrosulphosol is usually followed by an abrupt rise in temperature which subsides as rapidly in twenty-four hours. In none of the cases treated has infection developed, although in some instances the wound was infected or potentially infected. Patients have recovered rapidly and without developing complications; there has been a minimum of scarring and contracture; this is attributed by the author to the "flexibility of the eschar" with hydrosulphosol; this contributes to freedom of movement in severe burns of the hands and fingers especially. Dr. Cruthirds reports the use of a 40 per cent solution in the treatment of a lye burn of the face, eyes and mouth; one eye was practically destroyed before treatment was instituted but the vision of the other eye was saved and there was no disfiguring scarring of the face.

COMMENT

This report would seem to constitute an important contribution to our methods of treatment in industrial accidents. The present emergency situation in this country renders this work all the more valuable.

F.L.M.

Field Study of the Prophylactic Value of Pertussis Vaccine

J. E. PERKINS and his associates in the New York State Department of Health (*American Journal of Public Health,* 32: 63, January 1942) conducted a study of the value of pertussis vaccine in Binghamton, N. Y. The complete series of injections of the vaccine—three subcutaneous injections of 2.0 ml., 3.0 ml. and 3.0 ml., at weekly intervals—were given to 593 children from six months to four years of age. A control group of 699 children of the same age group living under similar conditions (some in the same families) were kept under observation. Every family included in the study was visited once a month by a nurse, and every case of illness in any way suspicious of whooping cough was referred to a physician for investigation. There were 101 cases of definite whooping cough and 24 suspicious cases among the children in the control group, and 42 definite and 19 suspicious cases in the vaccinated group. On the basis of definite cases of whooping cough alone, the attack rate was 13.3 cases per 100 children in the control group and 5.3 cases per 100 children in the vaccinated group; if the suspicious cases are added the rates become 16.4 among the controls and 7.7 among the vaccinated. The percentage of severe cases of whooping cough was greater among those developing the disease in the control group than in the vaccinated group, while 79 per cent of cases in the vaccinated group were classified as mild. These findings agree with those of a study conducted in Grand Rapids, in showing a significant difference in the pertussis attack rate in vaccinated and unvaccinated children.

COMMENT

This carefully conducted study is an important contribution to our knowledge regarding the effectiveness of pertussis vaccine in preventing and modifying attacks of whooping cough. The results reported here seem to fall in the middle ground between those reported in the Grand Rapids study and those obtained in the Cleveland study.

It would appear that evidence is accumulating to the effect that a useful immunizing agent against this disease is now available.

F.L.M.

Tuberculosis Control Among the North American Indians

J. G. TOWNSEND and associates in the Office of Indian Affairs (*American Review of Tuberculosis,* 45:41, January 1942) report a study of the incidence of tuberculosis infection and disease in representative groups of Indians in the United States and Alaska, by means of the intracutaneous tuberculin tests and roentgenological examination. The tuberculin tests showed an increasing incidence of positive reactors for each five-year age period, reaching approximately 100 per cent for twenty-five years and over. The incidence of clinically significant pulmonary tuberculosis as determined by roentgenological examination ranged from 1.1 per cent to 6.9

per cent; the lowest incidence was observed in an Arizona tribe, the highest in Alaskan Indians; two tribes in Wyoming showed an incidence of 5.7 and 5.8 per cent respectively. When active cases of tuberculosis are found among Indians every effort is made to arrange for their hospitalization in the sanatoria conducted by the Indian Service or at some institution under contract; during the last fiscal year 4,793 cases of tuberculosis among Indians have been treated at such institutions. A test of the value of BCG vaccine has been made among Indian tribes. From February 1936 to February 1938, 1,565 Indians from one to nineteen years of age were vaccinated intracutaneously with BCG vaccine, and have been kept under observation for three years; a control group of 1,459 Indians of the same age and sex, living in the same area and under exactly the same conditions, has been kept under observation for the same period. Before this study was begun both the vaccinated and the control groups failed to react to the intracutaneous injection of tuberculin; and most of them had x-ray chest examinations always with negative results. At the end of two years' observation, the percentage of tuberculin reactors had increased in the control group but not in the vaccinated group as compared with the previous year. Only 5 cases of pulmonary tuberculosis, as shown by x-ray examination, had developed in the vaccinated group in the two years, while there were 40 new cases developed in the control group in this time. One death from tuberculosis occurred in the vaccinated group in the first year, none in the second year; in the control group 3 deaths from tuberculosis occurred in the first year and 3 in the second year. In the third year 2 additional deaths from tuberculosis occurred in the vaccinated group, making the total 3 deaths for this group; and 5 more deaths from tuberculosis occurred in the control group, making the total 11 deaths in this group. One additional case of tuberculosis developed in the vaccinated group in the third year, making a total of 6 new cases of tuberculosis in this group in three years; there were 19 new cases in the control group in the third year, making a total of 59 new cases of tuberculosis in this group in three years—or approximately 10 times more than in the vaccinated group. These results indicate that the BCG vaccine has definite protective value.

Comment

Tuberculosis among the Indians of this continent has had the effect of almost eliminating certain tribes. While hospital facilities are perhaps adequate there has been, no doubt in many instances, difficulty in keeping patients in these institutions for a length of time sufficient to give best results.

The study on the use of BCG vaccine is most interesting.

F.L.M.

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OPHTHALMOLOGY

Etiology of Uveitis

J. S. GUNTON and A. C. WOODS (*Archives of Ophthalmology*, 26:983, December 1941) report a study of the etiological factors in 562 cases of uveitis. All of the patients in this series were admitted to the wards of the Wilmer Ophthalmological Institute of Johns Hopkins Hospital, and were not outpatients; hence they represent a group with uveitis "more severe than the average." In addition to the medical history and general physiological examination, the "diagnostic survey" included special examinations of the nose, throat, nasal sinuses, teeth, and urogenital systems; serologic tests for syphilis and tuberculin tests; and since 1936 complement fixation tests for gonorrhea. Roentgenograms of the chest were made in 287 cases; and bacteriologic studies of foci of infection and various sensitivity tests were made in some instances. In 244 cases sufficient evidence was obtained "to justify a relatively definite conclusion" as to the cause of the uveitis; in the remaining 318 cases the evidence was not sufficient to determine the etiology definitely, or to permit more than "a fair guess." In 132 cases in the first group, the diagnosis of tuberculous uveitis was definitely established by the nature of

the lesion or by the tuberculin test. Syphilis was found to be the cause of the uveitis in 45 cases; definite evidence of a focus of infection as the cause of uveitis was found in only 31 cases in this group. However, in the group in which no cause could be definitely established, foci of infection were considered as a possible factor in 110 cases. In the series of patients as a whole, foci of infection were no more frequent than in a control group without uveitis, and removal of infected foci did not reduce the incidence of recurrence of the uveitis. The authors are of the opinion that the diagnosis of ocular tuberculosis depends more on the clinical picture and the exclusion of other factors that may produce similar lesions than on tuberculin tests. Syphilitic uveitis, they find, is usually easy to diagnose; and acquired syphilitic choroiditis is rare. Granulomatous uveitis can usually be distinguished clinically from the nongranulomatous type. Most cases of non-granulomatous uveitis, they believe, can be explained on the basis of "a local ocular sensitivity developing from a transient bacteremia. Such a transient bacteremia may arise from a clinically noninfected mucous surface as well as from a clinically infected surface."

COMMENT

Some will object to the percentage of uveitis without etiology in this group. Only a few years ago, before the slit-lamp came into general use, uveitis was a group of hopeless cases without known cause, except in a few cases. While the rate of recovery is not much better now than in that day, our knowledge of these cases, both clinically and pathologically, has increased very satisfactorily, considering conditions. With uveitis definitely established, the prognosis cannot be good, but preventive measures may yet become effective through such studies as this which are only possible in large, well-managed eye hospitals. ***R.I.L.***

Lime Burns of the Eye

A. L. BROWN (*American Journal of Ophthalmology*, 26:754, Nov. 1941) has found by experiments on rabbits that the severe corneal erosions following lime burns of the eye are due to contact with the burned palpebral conjunctiva which acts as a caustic. The experiments indicated that the lime produces a chemical alteration in the palpebral conjunctiva, which also serves as "a reservoir" for corrosive substance that cannot be washed off. The altered tissue of the palpebral conjunctiva is irritating to the cornea and prevents healing of the epithelium. Thus in order to prevent delayed reactions to lime burns the two burned surfaces (palpebral and bulbar conjunctivas) must be separated by a smooth tissue during the process of healing. Three cases of lime burns involving the face and eyes are reported in which transplants of rabbit peritoneum were used for this purpose. In 2 of these cases the transplant was not employed until several hours after the injury, in one case when the patient was first treated about an hour after injury. Before the operation, the extent of the damage should be ascertained, and the eye irrigated with warm water to remove all visible particles. The author considers that neutralizing substances are "of no avail unless used instantly," and are better omitted from the treatment. A wide external and internal canthotomy may be done if the lids are too swollen to permit "a reasonable inspection." A section of peritoneum about 4.5 x 10 cm. is obtained from a freshly killed rabbit, and is passed through three washes of physiological saline. No. 5 silk sutures are passed through the center area of the tissue about 2.5 cm. apart, and then through the upper fornix; the tissue is then "shoved gently" into the upper fornix with a bone spatula, the sutures being "pulled along" to aid this process. The sutures are brought out under the brow and tied over buttons. The peritoneal tissue is then smoothed out over the eye, and sutured in the lower fornix. Considerable "play" is allowed in the flap to provide for shrinkage, and the ends are allowed to hang out, no bandage being applied. This procedure covers the entire eye with "a doubled, smooth membrane" which separates all opposing surfaces. The first stage of healing—epithelization of the cornea with no staining—occurs in four to eight days; at this time the peritoneal transplant may begin to strip off; it may be

replaced; it should be kept in place for two or three weeks if no reaction or infection develops, until the conjunctival swelling has subsided, and the corneal surface is fairly smooth, even though scarred. The flap may then be removed and atropine and ointment employed as indicated. In the 3 cases reported, there was no permanent damage to the cornea, and vision was preserved.

COMMENT

Separation of the damaged conjunctival surface of the lid from the cornea has been a problem and probably the rabbit peritoneum may be the solution. The use of solutions to dissolve the albuminate of lime produced by the contact of lime with the tissues, and to eliminate the white scar so characteristic of lime burns even after the healing has taken place, is of positive benefit. It is difficult if not impossible to tell just how much damage has been done to the cornea by alkalies, and the secondary effect of the damaged conjunctival surface upon the cornea may be over-estimated; nevertheless, the value of the procedure is evident.

R.I.L.

The Use of Various Sulfanilic Acid Derivatives in Trachoma

K. W. COSGROVE and L. K. HINDLEY (*Southern Medical Journal,* 35:43, January 1942) report the use of various sulfanilic acid derivatives in trachoma. Patients under treatment were observed at weekly intervals, and 96.5 per cent have been followed up for more than three months. The results of treatment were classified as: arrested, when all signs and symptoms except scarring had disappeared; improved, when the lids were quiescent, but pannus or follicles were still present to some extent; unimproved, when there was no change. Sulfanilamide by mouth in a dosage of 1/7 grain per pound body weight daily for four weeks combined with the local application of a saturated solution of sulfanilamide (0.8 per cent) resulted in arrest of the disease in 72.5 per cent of 853 cases, and improvement in an additional 22.2 per cent. Sulfanilamide by mouth without local application did not arrest the disease in any of 25 patients. Local application of the saturated solution of sulfanilamide alone arrested the disease in 69.4 per cent of 392 cases; 12.7 per cent showed improvement; in 2 cases this local treatment did not prevent recurrence; but the addition of sulfanilamide by mouth in a dosage of 1/5 grain per pound body weight daily promptly arrested the disease. In many cases treated by local application alone, marked visual improvement was noted. In 428 cases in which a daily dosage of sulfanilamide 1/5 grain per pound body weight was given for ten days plus the local application of the saturated solution, 86.7 per cent showed arrest of the disease and 11.7 per cent improvement. In 22 cases sodium sulfanilate was given by mouth in a daily dosage of ⅔ grains sulfanilate acid powder plus ⅓ grain sodium bicarbonate per pound body weight; 91 per cent of the cases were improved but none arrested by three weeks' treatment. When local applications of a 2.5 per cent solution of sulfanilic acid were used in addition to the oral treatment of sodium sulfanilate in 96 cases, 75.1 per cent were arrested and 20.8 per cent improved. It was noted that the follicles of the first stage disappeared more rapidly with this treatment than with any other. Sulfathiazole given by mouth in a dosage of 1/5 grain per pound body weight for ten days resulted in arrest of the disease in 85.7 per cent and improvement in 14.5 per cent; when local application of a 10 per cent sulfathiazole jelly was combined with the oral administration in 12 cases, the disease was arrested in 11 instances and improved in one case. Neoprontosil by mouth and local application in a small group of cases resulted in arrest of the disease in 88.2 per cent and improvement in 11.8 per cent. None of the patients treated showed any serious reaction; some complained of nausea or dizziness or developed a rash. In the treatment of trachoma it is evident local application of the sulfonamide drug used should be combined with oral administration.

COMMENT

This is a most illuminating report. The effect of local treatment is evident, but it seems that the internal administration of the sulfa compounds cannot be omitted in a certain percentage of cases.

R.I.L.

—Continued on page 112

Medical BOOK NEWS

Edited by
ALFRED E. SHIPLEY, M.D., Dr. P.H.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, N. Y.

Blumer's New Work on Treatment

The Therapeutics of Internal Diseases. Edited by George Blumer, M.D. Volume III, 738 pages; Volume IV, 791 pages; volume V, 765 pages. New York, Appleton-Century Company, [c. 1941]. 4to. Cloth, $50.00, set of 5 volumes.

Volume III

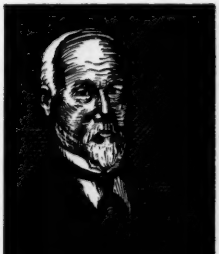
BY this time the medical reader has appreciated that this work edited by Blumer is more than a therapeutics. David Smith's chapter on Diseases due to Fungi is proof of this, for herein the discussion of Sporotrichosis, for instance, comprises paragraphs on history, etiology, pathology, symptomatology, diagnosis and prognosis, as well as treatment. Thus the work is really a practice of medicine with emphasis on therapy.

In this volume are chapters on Metazoan and Protozoan diseases. Intoxications, Diseases due to Physical Agents, Edema, Pre- and Post-operative Treatment, Diseases of the lower Respiratory Tract, Blood vessels and Lymph Tract, and Heart Disease and Heart Failure.

It is regrettable that the reviewer cannot single out special subjects for comment, but the articles are so numerous and their handling by the different authors so uniformly thorough and satisfactory that he can only comment that the volume has superlative value.

Volume IV

In this volume distinguished authors have again produced an outstanding text.



William Henry Welch
1850 ~ 1934

Classical Quotations

● The heart and blood-vessels everywhere were found to contain gas-bubbles in large amount; gas was also present in the subcutaneous connective tissue in some places, in the heart-muscle, liver and other organs. There was a solution of the blood coloring matter evidenced by the color of the blood, the diffuse red staining of the inner coat of the vessels and of the tissues in the pelvis of the kidney. The bacterioscopic examination of the blood revealed the presence of non-motile, capsulated bacilli in very large number wherever gas was found, and no other species of micro-organism could be detected.

William Henry Welch

A Gas-producing Bacillus *(Bacillus Aerogenes Capsulatus, Nov. Spec.)* Capable of Rapid Development in the Blood-vessels after death. *Bulletin of the Johns Hopkins Hospital,* 3:81-91. 1892.

The digestive tract, genitourinary system, blood diseases and diseases of the locomotor system are considered. Presentation and discussion are uniformly excellent, but a few subjects may be singled out for comment.

Achalasia of the esophagus (so-called cardiospasm) is interestingly discussed by Chevalier L. Jackson, Hurst's theory and the dilation treatment receiving consideration and emphasis.

The treatment of Peptic Ulcer as presented by A. J. Sullivan of George Washington is especially good.

A note on p. 105 relative to the subnutritional state, in which many patients come to operation, is worthy of notice not alone by medical men but by surgeons. Most patients should receive a critical medical survey before operations of serious character.

Volume V

The general excellence of these therapeutic monographs is maintained in this volume. It is difficult to single out particular contributions for comment in a publication of this kind. Two or three articles are outstanding, however.

Alexander Marble's chapter on Diabetes Mellitus is especially excellent. There are thorough discussions of the proper study of the patient and the application of the "four-period test" of the urine (1. before breakfast to before lunch, 2, before lunch to before supper, 3. before supper

to bedtime, 4. bedtime to before breakfast, including the rising specimen). Diets and their underlying principles are clearly presented. Insulin, coma, insulin shock, arteriosclerosis, infections, pregnancy and diabetes are well considered. Marble is physician to the New England Deaconess Hospital and its George F. Baker Clinic, from which so many valuable contributions to the subject of Diabetes Mellitus have come.

Henry H. Turner's chapter on Diseases of the Endocrine Glands is also outstanding. His account of these diseases is particularly lucid, his diagnostic comment invaluable, treatment clearly stated, and excellent illustrations are drawn apparently entirely from his personal studies in Oklahoma City.

Louis S. Goodman of Yale has a definitive article on the Sulfonamide Drugs, which is thorough, informative, and authoritative.

FRANK BETHEL CROSS

Toxemia of Pregnancy

Preeclamptic and Eclamptic Toxemia of Pregnancy. By Lewis Dexter, M.D. and Soma Weiss, M.D. Boston, Little, Brown and Company, [c. 1941]. 415 pages, illustrated. 8vo. Cloth, $5.00.

THIS volume represents a three year study of preeclamptic and eclamptic toxemia of pregnancy, conducted by the authors. Although the authors have been medically trained rather than obstetrically, the result of their efforts is a well rounded product which can be utilized by all physicians who practice the art of obstetrics.

The nature and significance of generalized edema in normal pregnancy and in toxemia of pregnancy is discussed in detail. The Pressor fraction of the posterior pituitary and its relation to the hypertension of toxemia of pregnancy have been investigated thoroughly, and this phase constitutes an interesting chapter. Treatment of eclampsia is reviewed both as to earlier methods and present day concepts. The complications of eclampsia are surveyed, especially circulatory failure, abruptio placenta, and acidosis. The work is heartily recommended to all.

JAMES F. BUTLER

A Vitamin Quiz

We Need Vitamins. What Are They? What Do They Do? By Walter H. Eddy, Ph.D. and Gessner G. Hawley. New York, Reinhold Publishing Corp., [c. 1941]. 102 pages. 12mo. Cloth, $1.50.

THIS little volume is an authoritative helpful review of the whole field of vitamins. It gives briefly in the form of questions and answers much of the kind of information which one ought to know about these important food elements. It can be well recommended.

ANDREW M. BABEY

Vade-Mecum on Allergy

Synopsis of Allergy. By Harry L. Alexander, M.D. St. Louis, C. V. Mosby Company, [c. 1941]. 246 pages, illustrated. 12mo. Cloth, $3.00.

THIS is a remarkable working manual of the practice of allergy. From the standpoint of presenting useful facts it compares favorably with some of the more voluminous tomes on the subject.

In the chapters on bronchial asthma, hay fever and allergic dermatoses, the emphasis is on therapy. There is, however, enough of the pathological physiology given and the present concepts of the conditions explained, clearly and tersely, to permit intelligent management of cases.

The author gives all the basic data needed as a guide to the treatment of most allergic conditions, and the bibliography is sufficient to enable the physician to obtain any added information necessary.

The appendix contains instructions for the preparation of allergic extracts for skin testing, gives lists locating various atopens in the household and industry, and also provides recipes for elimination diets. A surprising amount of valuable information for the general practitioner is compressed into 250 interesting pages. We recommend this volume to any physician interested in allergy.

SOLOMON SLEPIAN

Rheumatic Disorders

Arthritis in Modern Practice. The Diagnosis and Management of Rheumatic and Allied Conditions. By Otto Steinbrocker, M.D. Philadelphia, W. B. Saunders Company, [c. 1941]. 606 pages, illustrated. 8vo. Cloth, $8.00.

THE subtitle of this book is "The diagnosis and management of rheumatic

and allied conditions," and this is an excellent title and very descriptive of the work presented in this first edition. Rheumatism is still an excellent term to use for that group of painful joints and muscles that as far as treatment goes still defies modern medicine.

The figures Dr. Steinbrocker presents of the sufferers from rheumatism in comparison with other chronic conditions are astounding. Rheumatism, 6,850,000-heart disease 3,700,000-cancer and other tumors 930,000. The figures are for the United States in 1937, National Health Survey.

The book consists of some 600 pages, well illustrated and well put together. The attitude of the author is conservative, and his statements and deductions are founded on facts, the sources of which are freely given. The work fills a useful place in medical literature.

J. C. RUSHMORE

Health in Industry

Fatigue of Workers. Its Relation to Industrial Production. By Committee on Work in Industry of the National Research Council. New York, Reinhold Publishing Corporation, [c. 1941]. 165 pages. 8vo. Cloth, $2.50.

THIS book covers many subjects with respect to industrial production that are not included under the title of fatigue as usually understood. One chapter, however, on researches at the plants of the Western Electric Company discusses problems of muscular and nervous fatigue as we find them in factory workers.

Two other chapters go beyond this point to the consideration of general causes of industrial illness and the effects of heat and high altitude upon the workers.

A considerable part of the book is given over to personnel problems, such as methods of interviewing employes, the favorable effect of self-expression upon workers themselves, and extra time allowances.

The medical aspects of this volume will interest the general practitioner, while industrial physicians will find the entire book of value.

ALFRED E. SHIPLEY

Baby Feeding

Infant Nutrition. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams M. Marriott, M.D. Revised by P. C. Jeans, M.D. Third edition. St. Louis, C. V. Mosby Company, [c. 1941]. 475 pages, illustrated. 8vo. Cloth, $5.50.

COINCIDENT with the first edition of Marriott's *Infant Nutrition,* marked advances in the feeding of infants developed. These advances made necessary a second edition, and now the third edition is necessary to record the more recent changes. In the preface to the third edition: it is stated "the purpose of the book remains the same, namely, to bring together such facts and ideas as have a practical bearing on infant nutrition and to present them in such a way as to make them useful to the practitioner and student."

To illustrate the thoroughness of the revision your reviewer has selected Chapter I, VII, XVII, XVIII, as having been either revised, entirely rewritten or added to. These changes as well as others have resulted in bringing the material right up to date.

The boiling of sweet milk is advocated in this book, and is in line with many other authorities. However, your reviewer modestly refutes this dictum, and still maintains that the feeding of fresh raw milk (certified) is the best basis for infant feeding.

However, the book as a whole is excellent, and contains much practical information. Every practitioner of medicine who deals with children should have this book in his library.

ARCHIBALD D. SMITH

Venereal Disease Control

Plain Words About Venereal Disease. By Thomas Parran, M.D., and R. A. Vonderlehr, M.D. New York, Reynal & Hitchcock, [c. 1941]. 226 pages. 12mo. Cloth, $2.00.

THE venereal disease problem facing this country today deserves all the light that can be thrown upon it. Certainly the authors have written a work worthy of the title.

To one who had experience in the fight against venereal disease in World War I, some of the material which is supposedly factual is disturbing. The work done in

these United States would have been more useful and illustrative of the need for work to be done now than the emphasis given to the work done in the A. E. F.

Why the Surgeon General of the Public Health Service has been unable to impress the Army and Navy with the need for venereal disease control, and why he, with his associate, has been forced to present the case to the public and ask for backing, makes one wonder how our government functions. Is it conceivable that there is no team play among the cabinet and executive officers in our country's capital?

ALEC N. THOMSON

Medicine Unmasked!

Behind the Mask of Medicine. By Miles Atkinson. New York, Charles Scribner's Sons, [c. 1941]. 348 pages. 8vo. Cloth, $3.00.

IN this book Dr. Atkinson, a full-fledged modern man, attempts to show how medicine *considered as a social science* may more and more join the old age to the new. No moral or intellectual timidity hampers his perspective and the objectives sought are reasonable and praiseworthy. As to method, one gets views now and then like that on pages 300-302, where he seems to favor a whole-time State service taking care of "all." In this connection it should be borne in mind that Dr. Atkinson practiced in England until 1936 and hence is not so allergic to the idea of socialization as many of us.

The distinction between private and public practice "would largely disappear if a whole-time service on a salaried basis were to be introduced." In other words, private practice would tend to disappear. The picture which Dr. Atkinson draws of the conditions resulting is a naive one and not a whit more convincing than any of the prevailing blueprints.

But the reader must not get the idea that Dr. Atkinson has not provided a feast of reason in other directions. What he has candidly to say about excesses in surgery, the overgrowth of specialism, unethical practice and the plight of the hospitals will be found absorbing and sound enough. His case against the large hospital is substantially what he made out in the August, 1941 *Atlantic Monthly* (discussed editorially in this journal in the September, 1941 issue).

We suspect that Dr. Atkinson is a perfectionist to whom Utopia itself would fall far short of expectations. Nevertheless, such an attitude gives us our Swifts, Butlers, Voltaires and Menckens. We commend it, and only hope that he will be considered worthy of inclusion in their mighty fold.

Both cover and title page of this book are seriously marred by the double-serpented caduceus of Mercury, god of thieves, instead of the single-serpented staff of Æsculapius, god of medicine—symbolism not particularly reassuring to the medical reader.

ARTHUR C. JACOBSON

Two Books on Maternal Care

Maternal Care. The Principles of Antepartum, Intrapartum, and Postpartum Care for the Practitioner of Obstetrics. Edited by F. L. Adair, M.D. Second edition. Chicago, University of Chicago Press, [c. 1941]. 92 pages. 8vo. Paper, $.60.

THIS brochure is a revised edition of the first publication by the American Committee on Maternal Welfare on maternal care. As in the previous edition it briefly and clearly describes prenatal, intrapartum, and post-partum care. The necessary requirements for successful home delivery are given as well as the technique of the more usual vaginal operative procedures. Adherence to the basic principles described in the text would raise the level of maternal and infant care.

Maternal Care Complications. The Principles of Management of Some Serious Complications Arising during the Antepartum, Intrapartum, and Postpartum Periods. Edited by F. L. Adair, M.D. Second edition. Chicago, University of Chicago Press, [c. 1941]. 93 pages. 8vo. Paper, $.60.

THIS booklet briefly describes obstetric complications under the three headings of toxemias of pregnancy, obstetric hemorrhage, and puerperal infection. It is a revised edition of a previous publication by the American Committee on Maternal Care on the same subject. It clearly presents the principles of management of the serious complications arising during the antepartum, intrapartum, and post-partum periods. The therapy given for the various complications represents authoritative obstetric

ALEXANDER H. ROSENTHAL

Functional Pathologic Factors

Functional Pathology. By Leopold Lichtwitz, M.D. New York, Grune & Stratton, [c. 1941]. 567 pages, illustrated. 8vo. Cloth, $8.75.

THE author presents a most interesting analysis from a biochemical and neurochemical standpoint. Although many of the subjects discussed are necessarily of a controversial nature, they are presented in an original and orderly manner. They are bound to stimulate thought and consideration.

Throughout the book, the reader's attention is directed to the importance of the "hypothalamic-pituitary complex" particularly in relation to metabolism in general, and more specifically to the individual factors in metabolism. The specificity of hormone action is emphasized as assuming an action unlike that of enzymes.

Regarding cystic bone development, so commonly associated with parathyroid adenoma and which may occur without the adenoma hyperplasic, Dr. Lichtwitz speculates that it may be due to hypersensitivity to normal parathyroid hormone.

The chapter on water balance is especially enlightening. It is particularly pleasing to note that the author finds that polyuria precedes polydipsia. He divides diabetes insipidus into three types. The first group consists of those who have ability to concentrate; the second, an inability to concentrate; and the third in which the polyuria is relatively small, but there is inability to concentrate.

Under regulation of carbohydrate metabolism, the author has an interesting comment on what he calls "normoglycemic" diabetes, which adequately describes a type of young diabetic with persistent glycosuria and polydipsia and normal blood sugar levels.

The chapter on nerve metabolism is extremely stimulating. The impression gained is that acetylcholine is formed as a result of stimulation of the parasympathetic nervous system in contrast to the development of adrenalin or adrenalin-like substance as "sympathin" (Cannon). Every thinking physician will enjoy Dr. Lichtwitz's *Functional Pathology.*

HENRY M. FEINBLATT

Proctologic Anatomy

Perineopelvic Anatomy from the Proctologist's Viewpoint. By R. V. Gorsch, M.D. New York, The Tilghman Company, [c. 1941]. 298 pages, illustrated. 8vo. Cloth, $8.00.

THE author of this work needs no introduction to Proctologists. He has taught perineo-pelvic anatomy for a good many years, and the appearance of his book is evidence of the enormous amount of work that he has been doing in this field.

This volume is offered primarily from the proctologic viewpoint, and it is the reviewer's opinion that any proctologist will find in it all the perineo-pelvic anatomy that he will ever need. That the author has covered the literature thoroughly is evidenced by the exhaustive bibliography at the end of each chapter.

The book is most profusely illustrated, many of the illustrations being full page photographic reproductions of anatomical dissections which are clearly labelled. There are a few typographical errors throughout the volume. For example, in the table of contents the chapter on "The Anal Canal" is listed as being on page 22 when it should be 27. The text is presented in clear, concise language and in a manner easy to follow. There is a fine index, and the printing is all that could be asked. Those interested in this branch of anatomy would do well to add this volume to their libraries.

A. W. MARTIN MARINO

BOOKS RECEIVED *for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.*

Communicable Disease Control. A volume for the Health Officer and Public Health Nurse. By Gaylord W. Anderson, M.D. and Margaret G. Arnstein, R.N. New York, The Macmillan Company, [c. 1941]. 434 pages. 8vo. Cloth, $4.25.

The New International Clinics. Original Contributions: Clinics; and Evaluated Reviews of Current Advances in the Medical Arts. Edited by George M. Piersol, M.D. Volume IV, New Series Four, [c. 1941]. 314 pages, illustrated. 8vo. Cloth, $3.00.

Food Values In War-time. By Violet G. Plimmer. New York, Longmans, Green and Co., [c. 1941]. 80 pages. 12mo. Paper, 40c.

Comparative Biochemistry. Intermediate Metabolism of Fats. Carbohydrate Metabolism. Biochemistry of Choline. Edited by Howard B. Lewis. Volume V of A Series of Volumes Devoted to Current Symposia in the Field of Biology. Lancaster, The Jaques Cattell Press, [c. 1941]. 247 pages, illustrated. 8vo. Cloth, $3.00.

Encephalitis: A Clinical Study. By Josephine B. Neal, M.D. New York, Grune & Stratton, [c. 1942]. 563 pages. 8vo. Cloth.

The Blood Bank and the Technique and Therapeutics of Transfusions. By Robert A. Kilduffe, M.D. and Michael DeBakey, M.D. St. Louis, C. V. Mosby Company, [c. 1942]. 558 pages, illustrated. 8vo. Cloth, $7.50.

Diabetes Mellitus. By Zolton T. Wirtschafter, M.D. and Morton Korenberg, M.D. Baltimore, Williams & Wilkins Company, [c. 1942]. 186 pages. 8vo. Cloth, $2.50.

Don't Be Afraid! How to Get Rid of Fear and Fatigue. By Edward S. Cowles, M.D. New York, McGraw-Hill Book Company, [c. 1941]. 229 pages. 8vo. Cloth, $2.00.

I'm Gonna Be A Father! By Bob Dunn (With a Little Assistance From His Wife). Philadelphia, David McKay Company, [c. 1941]. Illustrated. 8vo. Paper, $1.00.

Neuroanatomy. By Fred A. Mettler, M.D. St. Louis, C. V. Mosby Company, [c. 1942]. 476 pages, illustrated. 4to. Cloth, $7.50.

The Principles and Practice of Beauty Culture. By Florence E. Wall, A. M. New York, Keystone Publications, [c. 1941]. 708 pages, illustrated. 8vo. Cloth, $6.00.

A Text-book of Neuro-anatomy. By Albert Kuntz, M.D. Third edition. Philadelphia, Lea & Febiger, [c. 1942]. 518 pages, illustrated. 8vo. Cloth, $6.00.

Food and Beverage Analyses. By Milton A. Bridges, M.D. and Marjorie R. Mattice, A. B. Second edition. Philadelphia, Lea & Febiger, [c. 1942]. 344 pages. 8vo. Cloth, $4.00.

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CONTEMPORARY PROGRESS

—Concluded from page 106

Cerebral Symtoms Accompanied by Choked Optic Discs in Types of Blood Dyscrasia

C. H. WATKINS, H. P. WAGENER and R. W. BROWN (*American Journal of Ophthalmology,* 24:1374, December 1941) report 3 cases of thrombocytopenic purpura with choked optic discs, and one case of choked disc in a patient with repeated gastric hemorrhages from an ulcer. In the first case (thrombocytopenic purpura), there had been repeated attacks of headache and stiff neck in addition to the choked disc, suggesting the possibility of recurrent subarachnoid hemorrhage; examination of the brain was not done at autopsy, but spinal fluid was obtained and showed no signs of blood, either old or recent. The other 2 patients with thrombocytopenic purpura were submitted to splenectomy and recovered; when the hemorrhagic symptoms were relieved the papilledema gradually receded. In one of these patients, there had been some headache and stiffness of the neck, but the spinal fluid was clear and there was no evidence of a "space-occupying" intracranial lesion. In the other patient there was paralysis of the lateral rectus muscle in addition to the choked discs, otherwise no signs of a gross cerebral lesion. In the fourth patient, with recurrent gastric hemorrhages, there was no evidence of a general hemorrhagic tendency, or of intracranial bleeding. It appeared that the edema of the optic discs in this case was associated with the loss of blood. The authors suggest that "the mechanism of production" of the papilledema was essentially the same in all these cases, i.e., "a local reaction of the tissues of the optic nerves to anoxemia that resulted from loss of blood." Edema of the brain arising from the same cause may be a factor in the production of the papilledema and also in the rectus muscle paralysis sometimes associated with it.

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Chicago Selected for 1942 Clinical Congress of the American College of Surgeons

BECAUSE of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago October 19 to 23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.